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**The Effect of Assessor Team Composition on Assessment Centre Decision  
Making**

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## **ABSTRACT**

The present study investigated the impact of a number of assessor characteristics upon the relative contribution of individual assessor ratings to the final assessment centre decision. Berger, Cohen and Zelditch (1966) have suggested that status characteristics such as gender can affect the influence hierarchy of the group in that women are seen to be of a lower status than men and as such are allowed less influence over the group task. It was therefore proposed that male assessors would have more influence over the final assessment centre decision than female assessors.

It has also been suggested that personality characteristics may affect the amount of influence that an individual is allowed over a group discussion. Previous literature has proposed that individuals who demonstrate high dominance and masculinity and low femininity may be allowed more influence over a group decision. The present study also proposes therefore that assessors who show high dominance or masculinity and low femininity will have more influence over the consensus discussion in an assessment centre.

These hypotheses were investigated using two alternate studies. The first of these consisted of a laboratory-based simulation of an assessment centre. The results showed that sex, dominance and masculinity did not have an impact on influence, whereas femininity had a negative effect in that assessors who were less feminine had more influence over the consensus discussion.

The second study was designed to assess the external validity of the findings of the first study using information that from archive records of candidates who participated in a real life assessment centre. The results demonstrated an effect of sex but not of femininity upon influence therefore contradicting the findings of study one.

These findings are discussed with regard to the literature on sex and personality differences in group-decision-making.

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## **1.0 RATIONALE AND OVERVIEW**

If a company is to be effective in terms of profitability and achieving its goals, it is essential that its workforce contain the right people. The employment of unsuitable individuals in key organisational positions can result in vast detrimental economic and cultural effects for the organisation. Advances in terms of equal opportunities legislation have also added to the need for an organisation to utilise a fair method of recruitment. It is vital therefore that an organisation spends sufficient time and thought on the design of their selection procedures. Selection methodologies have improved vastly in the past 50 years, with assessments centres generally being viewed as one of the most valid methods of selection, but these are still far from perfect. It is important that assessment centres and selection technology continues to develop if an organisation is to be confident that they are selecting the best person for the job.

An assessment centre can be described as 'a method for describing, evaluating or predicting the effectiveness of a manager' (Zedeck, 1986, p 260) and may be used to select which of a number of candidates is most suitable for a particular job. For a selection technique to be defined as an assessment centre, it must include multiple assessment techniques of which at least one must be a simulation, multiple assessors who must be trained in the techniques to be used and an overall assessment rating for each candidate, which is decided subsequently to that candidate's performance on individual exercises. The popularity of assessment centres has steadily increased over recent years, making it essential that the centre is capable of repeatedly selecting the best candidates for the job. Assessment centres have produced relatively high validity coefficients compared to other selection methodologies, so may appear to be the most effective method of selection. Further improvement in terms of validity results is still needed. It is important that assessment centres continue to develop if the predictive validity of the selection decision is to improve.

Ratings from the individual exercises within an assessment centre are combined into an overall assessment rating, upon which the decision of whether to hire or reject a particular candidate is based. This overall assessment rating can be formed either mechanically, by some statistical combination of information, or clinically, via a consensus discussion. Despite evidence that clinical combination is inferior to mechanical combination, the consensus discussion is still commonly used in assessment centres. Given the care that is taken over the rest of an assessment centre, it is somewhat surprising that so little attention is paid to the construction of the overall assessment rating. Research into the reasons behind the inferiority of a clinically formed overall assessment rating is much needed, if it is to be improved. The literature appears to have neglected a wide area of influence in the consensus discussion process, namely that of the assessors themselves.

Given that the consensus discussion in an assessment centre is essentially a group decision-making process, it would seem likely that findings regarding group dynamics in general may be applicable to an assessment centre assessor team. Research regarding group dynamics has provided substantial evidence that certain individuals within a group may be allowed more influence over the group decision making process and therefore may have more influence over the decisions that the group will eventually make. It may be therefore that one assessor is allowed to have more influence than the others over the consensus discussion. If this is so then it may create bias within the decision-making process that may lead to the formulation of a less valid overall assessment rating. The general purpose of this study is therefore to investigate those factors that may lead to an assessor being unjustly allowed more influence over the consensus discussion. More specifically, this research will examine a number of characteristics of individuals that have been shown in the literature to affect the amount of influence that any person is allowed within a group.

The hierarchical structure of an established task group can be explained using the theory of status characteristics and expectation states. This theory asserts that individuals form self and other performance expectations, based on assessments of task competence, so that those who are perceived to have more task competence will be awarded higher expectations. As a result of these expectations these individuals will be given more opportunities to contribute, contribute more, be given more rewards for their contributions and will be allowed more influence over the group task, and will therefore occupy a higher position in the power and prestige structure of the group. When group members can be distinguished in terms of external 'status characteristics' such as gender, race or age, stereotypical beliefs about these characteristics will be imported from society. Individuals will then form performance expectations based on the distribution of these status characteristics, so that those individuals who possess the desirable state of a characteristic, such as males, whites and older individuals, are awarded higher expectations and are allowed more influence over the group task. Gender is by far the most well researched status characteristic and has been shown in the literature to emerge frequently as a determinant of influence in groups, with males being allowed more influence over the group task. It can therefore be predicted that male assessors will have more influence over the consensus discussion in an assessment centre.

The effect of group dynamics upon the relative influence within a task group is not limited to status variables alone. A number of personality factors have also been identified as having an impact on the amount of influence that an individual is allowed over a group decision. Those 'valued personal characteristics' which are prominent in the literature include masculinity and femininity and dominance. Studies of leader emergence and perceptions of managers have demonstrated that individuals who are masculine or dominant have more influence over group problem solving. It can be predicted therefore that assessors who are high in masculinity or dominance, or low in femininity, will have more influence over the consensus discussion in an assessment centre.

The present study is designed to build up an integrated picture of the relationships between gender, masculinity and femininity and dominance and their impact upon the amount of influence that an assessor is allowed within the consensus discussion process. The study proposes to identify those factors that may underlie the inferiority of a clinically formed overall assessment rating.

## **2.0 ASSESSMENT CENTRES**

### **2.0.1 What is an assessment centre?**

Woodruffe (1993) has suggested that 'giving a precise definition of the assessment centre method or approach is not straightforward' (p.1), but 'one defining characteristic of assessment centres is their objective: to obtain the best possible indication of people's actual or potential competence to perform at the targeted job or job level' (p.2). It can be said therefore that an assessment centre aims to choose the best person for the job in terms of the knowledge, skills and attitudes which are needed for the targeted job role. Thornton and Byham (1982) have described an assessment centre as 'a procedure used by human resource management for evaluating personnel in terms of human attributes or abilities relevant to organisational effectiveness' (p.1).

What is it that makes an assessment centre different from any other method of selection? There are a number of characteristics of an assessment centre which can be used to distinguish this method from any other. The Task Force on Development of Assessment Centre Standards (1978) lists a number of elements which are essential in an assessment centre. The first of these principles is that '*multiple assessment techniques must be used*' and that '*at least one of these techniques must be a simulation*' (p.304). The use of a variety of selection techniques is commonly noted in definitions of the assessment centre method. For example, Fletcher (1982) has defined an assessment centre as a process by which an individual, or group of individuals, is assessed by a team of judges using a comprehensive and integrated set of techniques, and Woodruffe describes how an assessment centre combines 'a range of assessment techniques so that the fullest and clearest indication of competence is achieved' (p.2). The Task Force describes a simulation as 'an exercise or techniques designed to elicit behaviours related to dimensions of performance on the job requiring the participants to respond behaviourally to situational stimuli' (p.304).

Woodruffe describes this logic as 'straightforward' in that 'if the objective is to find out people's competence to perform a job, the surest route is to capture the essence of the job in a set of simulations. People's performance at the simulations should be predictive of their behaviour in the job itself' (p.2). Cook (1998) supports this view with the suggestion that 'any single assessment method may give misleading results; some people "interview well", while others are "good at tests", whereas a person who shows ability to influence in both interview and inventory is more likely to "really" be able to influence others'(p.174). So, one defining characteristic of an assessment centre as compared to other selection methodologies is the fact that a combination of selection techniques, including at least one simulation, are used in order to build up a picture of a candidate's suitability for a particular job role.

The Task Force on Development of Assessment Centre Standards also dictates as an essential element of an assessment centre that 'the dimensions, attributes, characteristics, qualities, skills, abilities or knowledge evaluated by the assessment centre are determined by an *analysis of the relevant job* (p.304). Therefore, another important aspect of an assessment centre is that it should be specific to the particular job role being targeted. Thornton and Byham (1982) suggest that 'effective assessment centre procedures are based on the identification, definition and evaluation of defined managerial job dimensions'(p.224). The exercises that are included in an assessment centre should be designed to assess the level to which a candidate demonstrates a clearly defined set of competencies which have been identified from a thorough analysis of the relevant job.

While it could be said that the key features of an assessment centre are the identification of competencies based upon an analysis of the job role and the use of multiple assessment techniques, including at least one simulation, there are also a number of other characteristics of a typical assessment centre. Another essential element as dictated by the Task Force for the Development of

Assessment Centre Standards is that '*multiple assessors must be used*' and that '*these assessors must receive training prior to participating in a centre*' (p.304). Given the importance of the decisions made at an assessment centre it is vital that the assessors should be trained to accurately observe, record and evaluate behaviour (Burke and Langlois, 1981). This principle is supported by Woodruffe's assertion that that 'the whole assessment centre stands or falls by the quality of assessors' work' (p.169).

The final principle of the assessment centre method as defined by the Task Force on Development of Assessment Centre Standards concerns the way in which the information gathered at an assessment centre is used and the decision of whether to hire or reject a particular candidate is made. The Task Force state that '*judgements resulting in an outcome (i.e. recommendation for promotion, specific training or development) must be based on pooling information from assessors and techniques*' and that '*an overall evaluation of behaviour must be made by assessors at a separate time from observation of behaviour during the exercises*' (Task Force on Assessment Centre Standards, p.304). Once the assessment centre exercises have been completed, the information gathered during the centre should be collated in order to produce the overall assessment rating used to decide which candidates should be offered a job.

To summarise, a typical assessment centre consists of a number of different assessment techniques (including a simulation) upon which several assessors rate each candidate's performance on a number of job specific dimensions. Following the completion of these exercises the assessors combine their ratings to form an overall assessment rating. This overall assessment rating provides the basis upon which the decision of whether to hire or reject a particular candidate is made.

Since the first industrial application of an assessment centre in 1956 by the American Telephone and Telegraph Company (Bray, 1964), its popularity as a method of selection has greatly increased. Adler (1987) suggests that 'over the past quarter century, the assessment centre method has become one of the most widely respected, accepted and utilised approaches to managerial selection in corporate America' (p.74). Anderson, Payne, Ferguson and Smith (1994) have stated that 'in the UK, use of assessment centres has almost tripled over the past five years and has increased fivefold over the last two decades' (p.52). The assessment centre is therefore rapidly becoming one of the most widely used methods of selection. Gaugler, Rosenthal, Thornton and Bentson (1987) estimated that over two thousand organisations in the United States were using assessment centres at this time and Boyle (1993) revealed that 45% of the U.K. organisations included in their survey were using some kind of assessment centre programme.

## **2.0.2 Assessment centre validity:**

Woodruffe (op cit) has noted that 'the use of assessment centres has increased despite the cost of their installation and the on-going cost of operating them' (p.7). Given that they are expensive to set up and run (Feltham 1989), the reasons behind the increasing popularity of assessment centres, as opposed to other cheaper methods of selection, may be questioned. For an assessment centre to warrant the time and expense required for its development, it must be both reliable and valid. That is to say that it must be capable of repeatedly identifying those candidates who will demonstrate the highest standard of performance in those areas necessary for a particular position. Indeed, it is vital that any selection protocol is validated in order to 'check that it is doing what it was intended to do' (Woodruffe, p.188). It is essential that that an assessment centre is capable of selecting the person who will perform best in the job as the selection of a candidate who will perform poorly when in the post may have a



severe detrimental economic impact on the company. Validating a selection technique is not as clear-cut as it may seem, as there are more than one type of validity to be taken into consideration.

Woodruffe provides a reasonable explanation of the distinction between the types of validity with regard to assessment centres. *Content validity* can be established if the centre is 'a good and accurate simulation of the target-level job' (p.203). A content valid test will be representative of the job that it is designed to select people for. Sackett and Ryan (1985) have described content validity as 'the process of showing that the selection procedure representatively samples important job behaviours' (p.18). Given that an assessment centre by definition must contain a simulation it may be presumed that it has a reasonable level of content validity (Sackett and Ryan). Dreher and Sackett (1981) however, offer some words of caution in that content validation is only appropriate when the selection tool is designed to measure a candidate's current skill level (i.e. rather than potential to do the job).

A second aspect of validity is *construct validity* which 'deals with the centre as a measure of the job dimensions presumed to underlie job performance' (Woodruffe, p.203). Indeed for an assessment centre to have construct validity it must be based on a thorough job analysis, and that the dimensions identified in this analysis must be observable in the centre exercises (Byham, 1980). Given that 'the dimensions, attributes, characteristics or qualities evaluated by the assessment centre are determined by an analysis of the relevant job' and that 'the techniques used in an assessment centre are designed to provide information which is used in evaluating the dimensions, attributes or qualities previously determined' (Task Force on Development of Assessment Centre Standards, 1975, p.305) it could be expected that a well designed assessment centre should also demonstrate good construct validity.

A more quantifiable form of validity is that of criterion validity. Criterion validation involves the correlation of scores given at an assessment centre with some measure of future performance. Indeed Sackett and Ryan (op cit) refer to assessment centre validity as 'the degree to which assessment centres can accurately predict outcomes of interest, such as progress through managerial ranks' (p.14). It can be seen that if an assessment centre is accurately predicting a candidate's ability to succeed in a particular job role then there should be a positive relationship between assessment centre performance and some measure of on the job performance, in that a candidate who performs well at the assessment centre should also perform well once employed. Given that the main purpose of an assessment centre is to select the people who will perform best in a given job role, it is appropriate to examine the literature with regard to the criterion validity of assessment centres.

The main advantage of assessment centres over traditional assessment methods is 'their greater accuracy in forecasting job performance, which is demonstrated by the steady accumulation of validity evidence' (Feltham 1989, p.402). Adler (1987) has also noted that the assessment centre has produced impressive results in empirical research and Klimoski and Strickland (1977) have remarked that assessment centre results have been impressive, positive and predictive. The literature has indeed reported relatively high validity coefficients for assessment centres. Gaugler, Rosenthal, Thornton and Bentson (1987) included 50 studies in a meta-analysis of assessment centre validity, and concluded that, when corrected for sampling error, restriction of range and criterion unreliability, these studies yielded a mean validity coefficient of 0.37. Schmitt, Gooding, Noe and Kirsch (1984) conducted a meta-analysis of 99 criterion validity-related studies. After correcting for sampling error, the average overall observed validity for the assessment centres in this study was 0.43. Hunter and Hunter (1984) also found a mean validity coefficient of 0.43 for assessment centres. These validity coefficients appear high when compared to those reported for other selection methodologies. For example, Ghiselli (1973) examined the validity of

cognitive aptitude tests and found a validity coefficient of 0.22 when used to predict some form of proficiency criteria. Wiesner and Cronshaw (1988) found a lower validity coefficient of 0.20 when examining unstructured interviews. It may appear therefore that assessment centres show favourable validity evidence when compared to the use of other techniques alone.

Assessment centres have also been shown to demonstrate incremental validity, in that they show higher validity than the use of a single selection measure alone. Tziner and Dolan (1982) examined a variety of predictors designed to identify officer potential among women soldiers in Israel, including officer evaluations, intelligence and personality test scores, ratings in various assessment exercises, a consensus rating and an average of dimension ratings. Intelligence test scores and assessment exercise ratings were found to be equally effective as predictors of performance in training ( $r = 0.40$ ). However the combined use of both of these measures significantly increased this correlation to 0.50. Gardner and Williams (1973) also found that tests used alone gave poorer predictions than when used as part of an assessment centre. It could be said from the above findings that assessment centres generally demonstrate the relatively impressive findings in terms of criterion validity.

Validity evidence with regard to assessment centres should however be viewed with some caution. The nature of any criterion validation should be examined in order to establish if the resulting validity coefficients truly reflect the effectiveness of an assessment centre when predicting on-the-job performance. A concern that has received a reasonably large amount of attention in the literature is that of criterion contamination, which centres on the actual criteria on which validity results are based. Wallace (1974) has warned researchers to 'be wary upon obtaining high coefficients in selection research, and in particular, look at the criteria used'. An examination of validation studies of assessment centres demonstrates that the criteria used are often concerned with promotion potential, salary growth or supervisor ratings (Klimoski and Strickland, 1977). There is

some concern in the literature that the use of a criterion measure of this type, as opposed to a measure of on-the-job performance, may lead to inflated validity coefficients. Klimoski and Strickland (op cit) have commented that 'these frequently used criteria may have less to do with managerial effectiveness than managerial adaptation and survival' and that 'salary and advancement are a function of diverse forces not always reflecting performance' (p.355). The observation that those with high assessment ratings get promoted does not necessarily mean that the assessment centre is valid but may mean that the decision makers used the assessment ratings as a factor in making promotion decisions (Sackett and Ryan, op cit). Indeed, Turnage and Muchinsky (1982) found that assessment ratings were an effective predictor of promotion but were not correlated with ratings of on-the-job performance. So, it may be that validity coefficients as reported above are a function of the criteria used rather than a true estimate of assessment centre validity.

While care should be taken with regard to the criteria used in a validation strategy, it should not be presumed that coefficients using criteria of this type are inflated. Schmitt *et al* (op cit) and Hunter and Hunter (op cit) have both provided an empirical examination of this phenomenon in their meta-analytic reviews of assessment centre validity and have both concluded that this is not the case and that assessment centres produce equally impressive validity results using more objective measures of job performance. Schmitt, Noe, Merritt and Fitzgerald (1984) also found a relationship between assessment centre ratings and job performance as opposed to advancement.

Generally, it could be said that assessment centres have been shown to demonstrate relatively high validity coefficients. This validity evidence is only impressive however when compared to other selection techniques, and not when looked at in it's own right. Further investigation into assessment centre validity is

still needed. In fact given the care and expense that it takes to design and run an assessment centre, it could be seen as surprising that the validity results regarding of this selection method are not higher.

### **2.0.3 Shortcomings of the assessment centre method**

If assessment centre technology is to progress and the predictive validity of assessment centre decisions is to improve, then it is important that the reasons behind their surprisingly low validity are investigated. Why is it that assessment centres do not demonstrate better results in terms of predicting future job performance? Past research on improving assessment centre validity focuses on the processes of assessment and decision making in terms of the ways in which assessors make evaluations about candidates. While a well-designed assessment centre may appear more objective than other techniques, it still relies on human beings to make the decisions and therefore must involve a degree of subjectivity. The fact that assessors cannot be totally objective means that that less valid ratings or decisions may be made.

Cook (1988) suggests that 'ratings are prone to a number of systematic errors' (p.73). Saal, Downey and Lahey (1980) discuss the 'suspicions and criticisms associated with the use of rating scales and the information they provide' and go on to say that these criticisms 'reflect fears that rating scale data are subjective (emphasising of course the undesirable connotations of subjectivity), biased and at worse purposefully distorted' (p.413). The errors that an assessor may make when rating a candidate's behaviour are commonly divided into three main types of error. Firstly, *halo* refers to the 'tendency to think of a person as being generally good or generally inferior' (Saal *et al*, op cit p.414) and means that 'ratings on different dimensions aren't independent' (Cook, p.73). Halo arises because raters form a general impression of the ratee, which biases all the subsequent ratings of that candidate that they are asked to make (Lance,

LaPointe and Stewart, 1994). Halo can lead to a set of ratings being higher than is accurate if an assessor forms a generally good impression of the candidate, or lower if this impression is generally negative (severity). The second of the three types of rater error is *leniency*, which is described by Cook as the 'reluctance to give poor ratings, which pervasively affects referees' ratings' (p.73). Kane, Bernardin, Villanova and Peyrefitte (1995) examined the stability of rater leniency and concluded that rating leniently is a consistent pattern in raters' behaviour over time. The third type of rater error is known as *central tendency* and refers to an assessor's inclination to use the middle points of the scale and avoid the extreme points of the scale. DeCotiis (1977) has described central tendency as 'a rater's unwillingness to go out on the proverbial limb in either the favourable or unfavourable direction' (p.23). It can be seen how these three types of error may bias a candidate's ratings and possibly lead to a less valid decision being made regarding their suitability for any given job. The effects of these errors are commonly overcome by varying the format of rating scales or through proper training of assessors.

A considerable amount of research has also been devoted to the ability of assessors to distinguish between assessment centre dimensions and competencies. Cook (op cit) describes how 'the logic of the assessment centre method implies that assessors should rate candidates on dimensions; research suggests strongly, however, that assessors often rate candidates on exercises' (p.186). Robertson, Gratton and Sharpley (1987) suggest that assessment centre data should demonstrate both discriminant and convergent validity in that 'ratings of one dimension should correlate across exercises more closely (monotrait-heteromethod correlations) than ratings of different dimensions within an exercise (heterotrait-monomethod correlations)' (p.188). Research has shown however that heterotrait-monomethod correlations (within exercises) are consistently higher in assessment centres than monotrait-heteromethod (across exercises) correlations (Archambeau, 1979; Neidig, Martin and Yates, 1979). Sackett and Dreher (1982) found that ratings of different dimensions after the

same exercise correlated very highly showing a lack of discriminant validity and that ratings of the same dimensions over different exercises hardly correlated at all showing a lack of convergent validity. Sackett and Dreher also found that when assessment centre scores were factor analysed the factors related to exercises rather than dimensions. So, it would appear that assessors are rating a candidate's performance in a particular exercise rather than on a number of job specific dimensions. A number of means have been suggested for preventing this shortcoming in the assessment process, such as rating performance after the completion of all exercises (Silverman, Dalessio, Woods and Johnson, 1986) or using some form of behavioural checklist (Reilly, Henry and Smither, 1990).

Therefore the literature on the possible shortcomings of the assessment centre method focuses on two forms of bias within the rating process, rater error (halo, leniency and central tendency) and the lack of discriminant and convergent validity in an assessment centre. It should be noted that these both involve the evaluation of candidate performance during individual assessment centre exercises. One area that has been widely neglected in the literature is the final stage of the assessment centre process, the formulation of the overall assessment rating.

## **2.1 THE OVERALL ASSESSMENT RATING:**

The final stage of an assessment centre involves the collation and examination of the information that has been collected at that centre. The Task Force on Assessment Centre Standards (1978) lists as two of the characteristics of an assessment centre that 'judgements resulting in an outcome (i.e. recommendation for promotion, specific training or development) must be based on pooling information from assessors and techniques' and that an 'overall evaluation of behaviour must be made by the assessors at a separate time from observation of behaviour during exercises' (p.20). Therefore, following the completion of individual exercises, the assessment ratings for each candidate are combined into an overall assessment rating which is eventually used as the basis of the decision of whether or not to employ a particular candidate. Archambeau (1979) has stated that 'an overall assessment rating typically reflects a judgement made by the assessment staff (i.e. the assessors) regarding (1) the assessee's likelihood of achieving a specified level of management within a specified period of time, (2) the assessee's degree of 'acceptability' for higher-level managerial jobs, (3) the 'potential' of the assessee to perform effectively at a specified level of management' (p.7).

There are two main ways in which to formulate an overall assessment rating. Most commonly, the ratings that have been given by individual assessors are combined clinically via a consensus discussion. Woodruffe (1993) provides a reasonable explanation of this process. 'Until the assessors' meeting, assessors will have observed and rated behaviour independently of each other across the various exercises. At the meeting, assessors will share these ratings and behavioural examples in order to come to a common view of participants in each competency, particularly a view on each participant's strengths and development needs' (p.160). Sackett and Hakel (1979) describe how 'typically, assessees are reviewed one at a time, with each assessor independently rating the



assessee on each dimension and independently making an overall rating. Differences among assessors are then reconciled' (p.120).

The second, and less common, method of formulating an overall assessment rating is to pool information mechanically, using some statistical combination of information, instead of having an assessor discussion. The scores for each dimension are put into a mathematical formula, the result of which is the overall assessment rating. This formula may be a simple or weighted average of the dimension scores (Woodruffe, op cit).

The relative merits of clinical versus mechanical formulation of the overall assessment rating have received some attention in the literature. Woodruffe notes that 'it is technically better to use a mathematical formulae to combine scores on individual dimensions for making decisions instead of having a discussion by assessors' (p.164). Sawyer (1966) compared these two methods of data integration by analysing the results of 45 studies and concluded that, in terms of validity, clinical methods are always inferior to mechanical. Feltham (1988) examined an assessment centre used for selecting police constables for places on an accelerated promotion scheme and found that when correlated with overall job performance a unit weighted composite produced a coefficient of 0.23 as compared to 0.18 for a clinical overall assessment rating. Feltham concluded that 'these findings appear to demonstrate the superiority of mechanical combination of assessment centre information over judgmental (clinical) combination'. In a similar fashion, Wingrove, Jones and Herriot (1985) concluded that a discussion does not result in an increase in predictive validity and Sackett and Wilson (1982) found that a simple mechanical prediction rule correctly predicted consensus ratings in 94.5% of cases, showing that the consensus process was not necessary.

Given that the mechanical integration of assessment centre data would appear to be less time consuming and less costly than clinical integration, as well as more

effective in terms of predictive validity, it may appear surprising that the consensus discussion is still used in assessment centres. Jones, Herriot, Long and Drakely (1981) have provided two explanations of the continued use of a clinically formed overall assessment rating. Firstly, available assessment centre sample sizes appear typically too small to produce robust equations such as those needed to mechanically integrate data. Secondly, Jones *et al* have suggested that the removal of the consensus discussion is 'politically unacceptable since one of the major attractions of assessment centres for organisations is that they allow line manager assessors to determine who is selected or promoted' (p.2). Woodruffe has suggested that using a mechanical algorithm to form the overall assessment rating 'might well detract from the assessor's feeling that they have power in the decision' and that 'the use of a computer ignores their need to feel they have done the right thing by each person and considered each case on its merits' (p.165). It is therefore unlikely that organisations will be willing to relinquish the assessor 'wash-up' as a means of formulating the overall assessment rating in an assessment centre.

As the consensus discussion is probably the most common method of data integration within an assessment centre, and as this is not likely to change in the near future, it is somewhat surprising, that more research has not been conducted into the reasons behind its relatively low predictive validity. Sackett and Hakel (1979) have described the overall assessment rating as an 'anomaly' (p.121) in contrast to the care taken over the rest of an assessment centre. It may be that the relatively poor predictive validity demonstrated by a clinical overall assessment rating as opposed to the mechanical combination of data may be one reason behind the failure of assessment centres to produce better validity results. As organisations will probably continue to use the consensus discussion approach, it is essential that the reasons behind the inferiority of this method be investigated. If the predictive validity of clinically integrated assessment centre data can be improved then this may lead to an increase in the validity of the assessment centre *per se*. The present study will therefore focus

on the clinical combination of assessment ratings into an overall assessment rating.

Why is it that a clinical overall assessment rating, as formulated via a consensus discussion, demonstrates poorer predictive validity than a mechanical rating? The literature regarding the inferiority of judgmental combination of assessment centre data is sparse. Sackett and Hakel (1979) suggested that assessors do not utilise all of the available information in reaching an overall rating. Anderson, Payne, Ferguson and Smith (1994) found that raters tended to rate observational data (such as work sample tests) too heavily and were integrating only some of the available information into their decision-making strategy. However, past research appears to have neglected a large area of influence within the consensus discussion, that of the assessors' characteristics, which may have a significant effect on the nature of the consensus discussion itself.

## **2.2 GROUP DYNAMICS WITHIN THE ASSESSOR TEAM**

Given that the consensus discussion in an assessment centre essentially revolves around group decision-making, it is bound to be subject to some of the common processes of group dynamics. Zedeck (1986) has described the fact that group dynamics are ignored in the literature (on assessment centres) as surprising, given that the emphasis in an assessment centre is on consensus discussion. A number of researchers have suggested that the composition of the assessor group may affect the ratings that the group gives. Schmitt (1977) proposed that 'in cases in which status differences exist among members of the assessor group, it is possible that one member will take control of the group and influence all ratings' (p.172). Sackett and Wilson (1982) also posed the questions 'are some assessors more influential than others?' and 'do factors such as assessor gender or holding that role of chairperson affect the amount of influence exerted by an assessor?' (p.11).

Empirical evidence that addresses these questions is sparse and inconsistent. Schmitt examined pre and post-discussion ratings in a large managerial assessment centre and concluded that 'post-discussion changes in ratings in this assessment centre were very small and indicated no tendency on the part of one member to change more than the others' (p.176). It should be noted though that the majority of assessors in this assessment centre were of a similar position within the organisation. Sackett and Wilson (1982) looked at the assessment ratings of 719 individuals from a middle management assessment centre and failed to find an effect of holding the role of chair, assessor gender, and candidate gender on the assessor's influence on the consensus decision. Sackett and Wilson (op cit) noted however that 'the makeup of this centre, that is, all assessors of equal status in the organisation and the role of the chairperson rotated among the assessors, may limit the generalisability of these findings to other centres' (p. 13). Indeed it should be remembered that most field studies of this type revolve around a single assessment centre and therefore that the findings may not be relevant to other centres. Herriot, Chalmers and Wingrove (1985) investigated the effects of rank on pre and post-discussion ratings of suitability within a Royal Navy assessment centre. Herriot *et al* discovered a significant main effect of rank on the likelihood of an assessor to shift their rating and concluded that the 'social processes of persuasion and influence are occurring' (p. 311).

It remains possible that status or personality differences within the assessor group may affect the clinical formulation of an overall rating within an assessment centre in that they may affect the amount of influence that an assessor is allowed over this process. Past research concerning this area is sketchy and very inconsistent at best and is unlikely to be generalisable across all assessment centres. It may be that the key to the inferiority of a clinically formed overall assessment rating may lie in the group dynamics of the assessor team. The present study will therefore focus upon the nature and possible effects of

individual differences within the assessor team during the consensus discussion, on assessment centre decision-making.

### **3.0 INFLUENCE IN TASK GROUPS**

In order to investigate the possible effects of individual differences in assessor teams upon the formulation of the overall assessment rating in an assessment centre, it is necessary to examine the literature on the dynamics of task groups in general. A number of authors have looked at the nature of influence patterns and the causal factors behind these within a decision making group.

Shaw (1980) has described the structure of a group as hierarchical in that each group member occupies a position in the group. This position is evaluated by other group members in terms of its prestige, importance or value to the group. Shaw refers to this evaluation as status and claims that 'there almost always exist status differences such that the group structure is hierarchical' (p. 263). Webster and Foschi (1988) have proposed that these status roles are the basic determinants of group behaviour in that those individuals with higher status are more influential and participate more in the group task. It may be therefore that the amount of influence that any person is allowed within a group depends upon the amount of status that they are perceived to have by other members of the group and themselves. This idea is supported by Ridgeway's (1993) assertion that 'in a task group, the higher one's standing, the greater one's influence over task activities and consequently, the greater one's contribution to collective success or failure' (p.113).

The literature has provided some empirical evidence to support the suggestion that the influence structure of a group is determined by the differing status roles of the individuals within the group. Torrance (1956) investigated the consequences of power differences in a B-26 combat crew. These three person groups of a pilot, navigator and gunner were asked to discuss four decision-making problems. Torrance's results demonstrated that crew position (in terms of rank) had a significant effect on influence in that the higher an individual's status in the crew, the more influence they had over the decision making tasks.

Strodbeck and Mann (1956) provided further evidence of the effects of status on influence. In a study of mock juries, Strodbeck and Mann found that individuals with higher occupational status were more frequently chosen as foremen, demonstrated the behavioural characteristics of a task leader and exerted the greatest amount of influence over the group decision. It can be established therefore, that status differences may play a large part in determining the influence structure of a group.

### **3.1. THE BASIS OF STATUS**

The existence of status within a group is not as clear-cut as it may first appear. Hollander (1958, 60, 61a) has suggested that status has an effect upon influence because members of a group perceive those individuals with higher status as being more competent in the group task. It is because of these perceptions that group members are willing to allow high status individuals more influence over the group task than those individuals of lower status. For instance, members of a task group within an organisation may allow a Manager more influence than an individual who is lower in organisational rank because they perceive that the Manager should be more competent at the group task. Status differences and effects cannot however be attributed only to the legitimate possession of status such as occupational rank, as differences still exist in groups that consist of individuals at the same organisational level. If a full understanding of the differentiated influence patterns in a task group is to be achieved it is necessary to fully examine the basis of an individual's perceptions of status.

Status can be defined as 'the placement of an individual along a dimension or in a hierarchy by virtue of some criterion of value' (Hollander, 1961b, p.31). Hollander (1958) has suggested that an individual's behaviour is not only phenomenally present in interaction but is also subject to view and appraisal by

other members of the group. Hollander also argues that status is the outcome of the group's differentiated perception of the individual, leading to a set of particularised expectancies regarding his behaviour. Therefore, in a group scenario, group members will observe and evaluate an individual's behaviour and, based on these evaluations, will form a perception of that individual's status. Group members will then expect the individual to behave in a way that reinforces these perceptions. Hollander (1960) proceeded to identify task competence as the main factor that must be demonstrated by an individual in order for others to perceive it as appropriate for him to exert influence within the group. Hollander (1961a) manipulated participants' knowledge of other group member's task competence in order to investigate its effect on perceived status (willingness to allow individuals to adopt a position of authority within the group). Hollander's results demonstrated that the amount of status accorded to an individual rose with increasing degrees of task competence, thus providing empirical evidence of the impact of task competence on perceived status and as such upon the amount of influence that an individual is permitted within a group.

It may be however that Hollander's assertions cannot be generalised to all task groups. Information regarding the task competence of group members may be readily available in well-established task groups, such as a long-standing committee, and therefore the impact of task competence on perceptions of status may explain the influence structure within these groups. However, as status gradients have been shown to emerge quickly in initially unstructured groups (Driskell and Mullen, 1990), what of those newly formed groups where information regarding the group members' task competence is not available? Surely in these situations, group members are required to rely on other factors on which to base their perceptions of status. Given that assessors in an assessment centre are often brought together purely for the duration of the centre, it could be said that an assessor team falls into this category. Therefore, if the influence patterns within an assessor team are to be understood, it is



necessary to examine the dynamics of ad hoc groups in which information regarding task competence is not readily available.

### 3.2 STATUS CHARACTERISTICS AND EXPECTATION STATES

The emergence and maintenance of differences in power and prestige in small, ad hoc problem solving groups has been fairly well documented in the literature. These processes are very apparent in Bales's observations of small, informal, task-oriented groups whose members were initially equal in status (Bales & Slater, 1955). Bales found that inequalities among members in terms of participation and influence regularly emerged in such groups, and that these patterns, once they had emerged, were highly stable. Berger, Wagner and Zelditch (1983) suggest that as the behavioural inequalities observed in Bales's study were very highly intercorrelated, they can be conceptualised as the components of a uni-dimensional power and prestige order. Berger and associates (Berger, Wagner & Zelditch, 1983; Berger, Fisek, Norman & Zelditch, 1977) describe this power and prestige order in terms of four main behavioural components. Firstly, Berger *et al* describe *action opportunities* as chances to contribute to the solution of the group's problem; secondly *performance outputs* are attempts to solve the group's problem; thirdly *reward actions* are the communicated evaluations of such attempts; and finally, *influence* is described as the change of opinion after exposure to disagreement within the group. Therefore, there are four basic kinds of task-related behaviour within a group. An individual may (1) request activity from another individual by asking a question for instance, (2) attempt to make some contribution to completing the task such as offering facts or suggestions, (3) evaluate other individuals' suggestions, and (4) change their evaluation or opinion as a consequence of another's disagreement (Berger, Fisek, Norman & Zelditch, op cit). Berger, Wagner & Zelditch (op cit) suggest that 'collectively these inequalities are referred to as the observable power and prestige order of the group' (p. 6).

Bales and his associates (Bales, 1953; Bales & Slater, 1955) found evidence of this power and prestige order in a number of circumstances. However, Berger, Wagner & Zelditch (op cit) suggest that these behaviours are most likely to occur

under particular circumstances: 'first, when a group is committed to solving a problem the outcome of which is valued (a task in which members can distinguish a success state from a failure state); second, when it is assumed by the members that some characteristic or ability is instrumental to success or failure at the task (the determination of the task outcome is not simply a matter of chance); third, when the members of the group are oriented to a collective outcome (it is necessary and legitimate to take each other's behaviour into account); and finally, when all the members are equal in terms of external statuses such as age, gender, education and race.' (p. 6). In groups such as these, it can be expected that a power and prestige order will emerge in that some individuals will be receive more action opportunities, supply more performance outputs, receive more positive reward actions and be allowed more influence over the group's decisions.

### **3.3 EXPECTATION STATES THEORY**

It is fairly well established that such patterns of power and prestige within small problem solving groups exist. If the nature of these patterns is to be fully understood, it is necessary to examine the processes behind this status differentiation. A theory as to the development of power and prestige orders in small ad hoc groups has been proposed by Berger and associates (Berger, Cohen & Zelditch, 1966; Berger & Conner, 1969; Berger, Cohen & Zelditch, 1972; Berger, Fisek, Norman & Zelditch, 1977; Berger, Wagner & Zelditch, 1983). This theory presumes that as group members go about completing the group task, they are continually initiating performance outputs, giving other's action opportunities, evaluating each other's performance outputs and communicating these evaluations with reward actions. Berger and Conner (op cit) suggest that during the early phases of the process most of this behaviour takes place in a random manner, particularly the distribution of action opportunities and whether or not these opportunities are accepted. However ' as

the members continue to interact, evaluations of performances become significant, and under some circumstances become the bases for a socially known ranking of the members by task ability – a ranking of performance expectations' (p.189). Berger and Conner go on to describe the effects of such ranking in that 'it will affect who is given action opportunities, who will on his own initiate performance outputs, whose performance outputs are positively or negatively evaluated, and who will be influenced by whom' (p.189).

The above process is the basis of 'expectation states theory' which describes the way that expectations about future performance arise out of the task-related interactions of members of a group and go on to determine the different types of subsequent task-related interaction. Performance expectations are 'stabilised anticipations of future task performance and are based upon evaluations of past behaviour that actors make for themselves and can communicate through reward actions for others' (Berger, Wagner & Zelditch, op cit, p. 7). As group members interact in order to complete a task, they form expectations regarding each other's performance, and allow each other opportunities and influence according to these expectations. So, as expectations form, evaluations and reward actions of specific past behaviour give rise to generalised anticipations of future behaviour. For example, if an individual A is interacting with another individual B, and if A and B have both formed high expectations for A and low for B, then it would be expected that: A will initiate more performance outputs than B; B will give A more action opportunities than A will give to B; B is more likely to communicate positive reward actions to A's outputs than A is to B's; and B is more likely to be influenced by A than A is by B (Berger, Wagner & Zelditch, op cit). Therefore it would be observed that A was higher in terms of the power and prestige order than B. The higher an individual's expectations for self are in relation to expectations for others, the higher is that individual's *expectation advantage*, and the higher is that individual's power and prestige position.

It should also be noted that the power and prestige structure within a problem-solving group, as determined by differences in performance expectations, is highly stable. In fact the very behaviours that are functions of differentiated expectation states also operate to maintain these states. For instance, differences in power and prestige behaviour, which are functions of differentiated expectation states, lead in turn to continuing differences in the rates at which performance outputs (problem solving attempts) are accepted. Given that the differences in performance expectations are based on differences in the rates at which others accept performance outputs, it can be seen how the power and prestige order may be maintained. Indeed, Berger, Wagner and Zelditch (op cit) suggest that changes in the power and prestige order will not occur unless they are 'determined by the presence of some exogenous factor (evaluations of the group product by an external source, for example) or by a change in the initial conditions of group action (with passage of time, for example, the group may become more process-oriented and therefore less task-focused)' (p.8). It would therefore appear that the group structure that emerges in the early stages of task-interaction is highly likely to remain as the power and prestige order of the group.

Conner and associates (Berger, Conner & McKeown, 1969; Berger & Conner, 1969) have provided experimental evidence of Expectation States Theory. Conner (1965) and Berger, Conner and McKeown (1969) used a Markov chain model to represent the relationship between evaluations and expectations. This chain consisted of three stages. Firstly group members have no defined expectations for self and others. Secondly, as they interact, the participants differentially evaluate the performances of self and other and repeatedly either accept or refuse the performance outputs of others. Thirdly, as a result of this process, individuals form differentiated expectation states which are then assumed to remain stable. Both Conner (1965) and Berger *et al* (op cit) used this chain of events as the basis for similar experiments using pairs and trios of participants respectively. Both sets of researchers concluded that the

participants moved from an undifferentiated state to either a 'high-low' or 'low-high' differentiated expectation state, and that there was a shift in the rates in which subjects accepted or rejected attempts to influence them in accordance with these states. These two experiments therefore supported expectation states theory.

Berger and Conner (1969) presented experimental evidence in support of the assertion that if A is ranked higher than B on expected performance, then A is less likely to accept influence. Berger and Conner manipulated performance expectations by giving two participants fictitious scores on a test that supposedly measured their ability to perform a word association task. The participants were then asked to complete this task in which they were asked to choose between two responses. Their initial choices were communicated to each other after which they were asked to make a final choice. A participant was presumed to have accepted influence if they changed their choice to match that of the other participant. Berger and Conner's results demonstrated that the acceptance of influence was higher when a participant had low expectations for self and high expectations for other, therefore also supporting Expectation States Theory.

It seems therefore that members of small ad hoc task groups form differentiated self and other performance expectations that are based on an individual's evaluations of each group member's performance outputs. Individuals with higher performance expectations for self have been demonstrated to have an expectation advantage and will be given more action opportunities, receive more positive reward actions and be allowed more influence within the group. Therefore it can be said that expectation states provide the basis of the power and prestige order of the group.

As an assessor team in an assessment centre is commonly formed purely for the purpose of that assessment centre, it may be described as an ad hoc problem-solving group and may therefore be subject to the processes described in

**Expectation States Theory.** An assessor team may satisfy those criteria as described by Berger, Wagner and Zelditch (op cit) that are necessary in order for a power and prestige order to develop. Indeed, an assessor team can be said to have a valued task in selecting suitable candidates for a specific job role, may assume that some ability such as observation or rating skills is instrumental to success at this task, are oriented to a collective outcome and may all be equal in external status. It may therefore be presumed that the power and prestige order within an assessment centre assessor group is based upon the development of expectation states within the team.

### **3.4 STATUS CHARACTERISTICS**

The power and prestige order within an assessment centre assessor team may be based on the development of differentiated expectation states. If the assessor wash up fits Berger *et al's* (op cit) group scenario as described above, then it may be that these expectation states are based upon the evaluations of each assessor's performance outputs during the initial random interaction of the group. However, Berger *et al* suggest that the circumstances under which a power and prestige structure develop in this way should include the assumption that all members of the group are 'equal in terms of external status, such as age, sex education and race' (p.6). Indeed, many assessor teams will consist purely of white, middle age males who are of a similar level in the organisational hierarchy. However, given the recent developments in terms of equal opportunities within organisations, the numbers of women and ethnic minorities are rising across all organisational levels. It is unlikely therefore, that the assessors within an assessment centre team will be of the same gender and race. It is therefore necessary to examine the nature of these external status characteristics and the effects that differences in these may have upon the power and prestige order of a task group.

Berger, Rosenholtz and Zelditch (1980) explain how those informal problem-solving groups that are initially unequal, unlike those described by Berger, Wagner and Zelditch (op cit), produce very different results in terms of the emergence of status orders. In these groups, inequalities that exist outside of the group are maintained within the group and in fact form the basis for the power and prestige order of that group. In this scenario the status structure appears to be created 'instantaneously' rather than out of the face-to-face interaction of group members. The power and prestige order in these groups is based upon the differences in the status characteristics of individuals within the group.

Berger, Rosenholtz and Zelditch (op cit) have described a status characteristic as 'any characteristic of actors around which evaluations of, and beliefs about them come to be organised' (p.479). A status characteristic is any differentiated characteristic of an individual that has the ability to affect features of subordination and superordination within a group, by creating expectation states that are relevant to the group task. Status characteristics can fall into two categories. They may be *specific*, in that they are intrinsic to a particular situation, or *diffuse*, in that they exist in society as a whole and as such can affect a number of different scenarios. Examples of diffuse status characteristics include gender, race, age and physical attractiveness.

Members of an ad hoc problem-solving group may be differentiated in terms of the possession of different states of a diffuse status characteristic (males versus female, white versus black). Associated with these states are particular social evaluations and expectations (Berger, Rosenholtz & Zelditch, op cit). These evaluations and expectations are imported into the group interaction by a process that has been called *status generalisation* and as such are allowed to determine important aspects of that interaction (Webster & Driskell, 1978). Webster and Foschi (1988) provide a reasonable example of status generalisation: 'if members of a jury presume, as they often do, that men have



better ideas and a better understanding of the issues involved, that they think more rationally and can be more useful to the jury than women, status generalisation has occurred. The status characteristic gender has been generalised to affect individuals' cognitions about the relative abilities of the jurors'. Webster and Foschi's example describes how the importing of status distinctions that exist in the outside world can determine interaction in small groups. In Western society, being male is associated with having higher status than being female, in that there are several social advantages associated with it. Males are often thought to possess certain abilities that women lack and therefore are assigned higher status. Webster and Foschi expand their example to include behavioural manifestations of status generalisation in that jurors are more likely to choose a man as foreman; men will talk more frequently than woman, and will be allowed to determine the direction of the deliberations. This is directly supported by jury studies such as those conducted by Strodbeck and Mann (op cit). It would seem that in this scenario there could be a direct link between being male and the power and prestige order of the group.

It can be seen that a similar pattern may exist within an assessment centre assessor group. If male assessors, for example, are expected to have better ideas regarding candidates, think more rationally and be more useful than female assessors, they may be allowed a higher position within the power structure of the assessor group, and as such, be allowed more influence over the assessment process. The theory of status generalisation may therefore be of direct relevance to the purpose of the present study, in that it may provide an insight into the group processes that occur during an assessor wash-up. It is therefore necessary to take a closer look at the nature of status characteristics and the way in which they may affect small group interaction.

There are a number of points that are widely accepted regarding the nature of status characteristics. Webster & Driskell (op cit) have divided these into six main generalisations: 1) Status characteristics act as cues to individuals and are used

as a basis to structure interactions between groups of strangers; 2) status characteristics are culturally evaluated. For example, in most Western societies, it is more socially desirable to be male, white, adult and professional; 3) status characteristics affect significant interaction features that are concerned with subordination and superordination; 4) external evaluations of status characteristics are maintained when they are imported so that a characteristic which is high status outside of the group will be high status within it; 5) status characteristics need not be relevant to the immediate interaction in order to affect it; 6) status generalisation is a process which is used by people to structure unfamiliar social situations and is most effective when group members have not interacted before.

A status characteristic can be either directly or indirectly related to an individual's ability to perform a task. For instance, if the group task is to perform mathematical puzzles, the states of mathematical ability will be directly related to that task. If group members believe that gender is consistently related to mathematical ability then gender will be indirectly related to the task. The relationship between the status characteristic and the task can be described as a '*path of task relevance*'. The closer the cognitive connection between the status characteristic and the group task, the shorter the path of relevance will be. For instance, the path of relevance between mathematical ability and expected ability to solve mathematical puzzles will be considerably shorter than the path of relevance between gender and expected ability at the same task. In a group scenario, if a path of relevance can be established between a status characteristic and the group task then the status characteristic will become salient and will be adopted as a useable cue in the immediate social situation (Berger, Rosenholtz & Zelditch, 1980).

A status characteristic can become salient within a group situation without a path of task relevance. Berger, Rosenholtz and Zelditch (op cit) describe how 'in their search for social cues, interactants will focus on status elements, whether diffuse

or specific, that provide a *basis of discrimination* among them, provided only that they are not explicitly dissociated from the task components in the situation' (p. 485). So, in the absence of a path of task relevance only characteristics that discriminate between group members will become salient. For instance, in a dyad where both individuals are black, race will not become salient as a status characteristic. If, however, one individual is black and one is white, then race will become salient and will be used as a basis for expectation states. The theory assumes that any characteristic that distinguishes between group members will become salient unless it has been proved to be irrelevant to the group task. This principle is known as *burden of proof* and states that 'unless the relevance of applicability of an external status characteristic is challenged, actors will infer task-specific performance expectations on the basis of any discriminable status characteristic they possess' (Webster & Driskell, op cit, p. 111). This will occur regardless of the actual relevance of the status characteristic to the group task. Therefore the emphasis is placed upon proving that a characteristic is not relevant rather than proving that it is.

Webster and Foschi (op cit) make a number of other observations about the process of status generalisation, using their example of gender differences within jury deliberations. Firstly, 'status generalisation occurs in the absence of logical and evidential bases' (p.2). This can be explained using the example of a jury in that women are expected to have less understanding of legal issues despite the fact that there is no evidence to support this. Secondly, 'the outcomes of status generalisation are often undesirable' (p.2). Indeed it can be recognised that allowing male jurors more influence over jury deliberations may lead to a less valid decision if female jurors are actually providing higher quality arguments. Thirdly, 'status generalisation is as powerful for individuals possessing the culturally determined low states of a characteristic as for those with the culturally determined high state of a characteristic' (p.3). To use the current example, female jurors are as likely to allow male jurors more influence over the jury deliberation, as are male jurors. Finally, 'most instances of status generalisation

occur outside the realm of conscious thought' (p.3). In a similar fashion, Davis (1994) has identified three important points regarding the theory of status characteristics and expectation states. Firstly, the pattern of influence in the group is heavily determined by stereotypical belief rather than evidence of ability; secondly, the effects of different social characteristics may not be due to the characteristics per se, but to their status value; and finally, the fact that different status characteristics can be reduced to a common denominator (status) means that findings regarding their effects on group behaviour can be integrated.

To summarise, the status generalisation process "imports" status characteristics (such as gender or race) from the larger society where they have certain meanings, into the group situation where they can affect aspects of subordination and superordination within the group. The advantages and disadvantages that are attached to these characteristics are preserved so that those characteristics that are associated with high status in society will also be associated with high status within the group. In newly formed groups, members will be differentiated in terms of some status characteristic. Unless this status characteristic is explicitly dissociated from the task, it will become salient and group members will form expectation states for self and other on the immediate task in such a way that they are consistent with the states of the diffuse status characteristic that they possess (Berger, Wagner & Zelditch, 1983). Those individuals who possess the desired state of a characteristic will be attributed more status than those with a less desired state of that characteristic, and will be expected to perform better at the group task. In accordance with expectation states theory, those individuals will therefore be allowed more influence over the group decision-making process.

### **3.4.1 Experimental Evidence for Status Generalisation:**

A number of researchers have provided empirical evidence for the theory of status characteristics and expectation states. Driskell and Mullen (1990) examined the relationship between status characteristics and expectations as part of their meta-analytic investigation into status, expectations and behaviour. Driskell and Mullen included seven studies in their meta-analysis and found that there was a strong relationship between status and expectations ( $r = .57$ ). Driskell and Mullen concluded the data argued strongly on behalf of the formulations of status characteristics and expectation states theory.

Moore (1968) attempted to study the status generalisation phenomenon in a controlled setting using educational status. Moore used 100 female Junior College Students who were each instructed that they were interacting either with a female from Stanford University (low status scenario) or with a female attending a local high school (high status scenario). Each participant was presented with a series of binary choice stimuli consisting of a rectangular grid containing a number of smaller black and white rectangles and was asked to decide whether contained a higher number of black or white rectangles. The participants repeated this procedure over 28 trials and on each trial were informed as to whether their partner had made the same initial choice as they had, before being asked to make a final choice. On each occasion the participants were informed that their partner disagreed. The results were recorded in terms of whether each participant's final choice changed to match their partner's choice or remained the same. Moore's results showed that when participants in the high status scenario were explicitly told that educational level was positively related to performance on the task, they were significantly less likely to change their decision to match that of their lower status partner. Low status participants who were given the same information were significantly more likely to defer to their higher status partners decisions. This supports the assertion that status characteristics that are directly relevant to the task may

affect self and other performance expectations and as such affect the amount of influence that each individual is allowed over the task. Moore also found evidence of the same differentiated behaviour in the high and low status scenarios when the relationship of the status characteristic (educational level) to the task was not made explicit. These participants were simply informed of their educational level without any indication of this characteristic's relevance to the task. These results support the existence of the burden of proof principle within the process of status generalisation.

Berger, Cohen and Zelditch (1972) conducted an experiment involving 180 Air Force staff sergeants. Berger *et al* manipulated the relevance and salience of the diffuse status characteristic of military rank by informing participants that their partners were either a Captain or Third Class airman, and that their partner's AQFT (Air Force Qualification Test) score was either higher or lower than their own. The participants then jointly performed a similar contrast-sensitivity test to that in the experiment conducted by Moore (op cit). The pattern of rectangles was changed over a series of 40 trials but actually contained equal amounts of black and white on each. On 38 of the 40 trials the participant was told that his partner's initial opinion was different to his own. Berger *et al*'s results demonstrated that a diffuse status characteristic could determine power and prestige positions in the task situation if it is relevant to the situation (has a path of relevance) or if it can be used to differentiate between group members. This experiment therefore supports the existence of status generalisation, and again particularly provides evidence of the burden of proof principle.

### **3.5 SUMMARY**

The power and prestige structure in a small ad hoc problem-solving group can be explained using the theory of status characteristics and expectation states as proposed by Berger, Cohen and Zelditch (1966). This theory suggests that group members are treated unequally due to unequal expectations regarding their performance. Group members are differentiated on some valued external status characteristic so that other group members form expectations regarding their performance based upon the distribution of that characteristic. It is this differentiation that determines the power and prestige structure of the group, regardless of whether or not the external status characteristic is related to the group task. Each status characteristic is associated through prior learning with beliefs about differences and qualities of performance, which cause individuals to believe that the contributions offered by particular group members are more likely to be correct. Those members who are perceived to have higher task ability will be allowed more opportunities to contribute to the group discussion, received more positive rewards and be allowed more influence over the decision making process.

As the assessor team in an assessment centre can essentially be described as a small ad hoc problem solving group, it can be suggested that the theory of status characteristics and expectation states may be used to explain the influence structure within the assessor group. Given recent advances in terms of equal opportunities, assessors can generally be distinguished in terms of gender, race and age as well as organisational level. It is likely that these status characteristics become salient within the assessment process in accordance with the burden of proof principle and therefore may be used as the basis of self and other performance expectations. It may be suggested that assessors who possess the high status state of a particular status characteristic will be allowed more opportunities to contribute to the formulation of the overall assessment rating, will receive more positive rewards for these contributions, and will

generally be allowed more influence over the discussion. It can be suggested therefore that this theory may provide an insight into the power and prestige order within an assessment centre assessor team and as such may provide one explanation of the inferiority of a clinically formed overall assessment rating.



#### **4.0 GENDER AS A STATUS CHARACTERISTIC**

A status characteristic can be defined as any differentiated characteristic of individuals that has the ability to affect features of subordination and superordination in the group, by creating expectation states that are specific to the group task (Webster & Foschi, 1988). The process of status generalisation imports a number of status characteristics into interaction to jointly determine an individual's status within the group. Any discriminating characteristic of individuals can act as a diffuse status characteristic, but those that are most likely to become salient within an assessor group are gender, race and age (Berger, Wagner & Zelditch, op cit).

Gender is by far the most well researched diffuse status characteristic and is probably the most common discriminatory diffuse status characteristic within assessor teams. As the number of women in managerial roles continues to increase, many present day assessor teams will contain at least one woman. As gender is so well researched and is relatively likely to be salient within an assessment centre assessor team, it will be the focus of the present study. Gender obviously consists of two states, male and female. Male is the preferred gender state in most societies in that it has social advantages attached to it (Webster and Foschi, 1988), so women are seen as being of lower status than men. Therefore, in a situation where both men and woman are present (and gender is therefore a salient status characteristic) higher performance expectations will be attributed to men and men will be allowed more influence over a group task. As gender has been selected for inclusion in the present study, it is necessary to look at the literature regarding gender as a status characteristic. In particular the evidence that has been provided to support the assertion that females are seen as being of a lower status than males, will be examined.

#### **4.1 EVIDENCE FOR GENDER AS A STATUS CHARACTERISTIC**

The identification of gender as a diffuse status characteristic was included in the first formulation of expectation states theory in 1966 (Berger, Cohen & Zelditch, 1966). Berger, Fisek, Norman and Zelditch (1977) suggest that gender is a status characteristic by stating that 'it is well known that females display marked social inhibition and subordination to male partners in cooperative problem-solving situations. They are less active participants, less influential, more likely to defer to the opinions of males than are males to females, less likely to contribute problem solving attempts (suggestions, information, opinions) and more likely to contribute reactions (agreements praise)' (p. 3). Lockheed and Hall (1976) tested these assumptions using two experiments involving high school students and college students. The students were divided into groups of two females and two males and were asked to complete a decision-making task. Lockheed and Hall concluded that the results of both experiments showed that gender does operate as a diffuse status characteristic. Meeker and Weitzel-O'Neill (1977) also concluded that, in the absence of specific information regarding task competence, women were generally assigned lower status than men in task groups, therefore supporting the identification of gender as a status characteristic.

Other than the experiments by Lockheed and Hall (op cit) and Meeker and Weitzel-O'Neill (op cit), there have been few direct tests of gender as a status characteristic within the context of the original theory of status characteristics and expectation states. However, some evidence of gender as a status characteristic does exist in studies of behaviour in mixed sex groups. The presence of gender as a status characteristic should result in marked differences in the behaviour of, and evaluations of, men and women in task groups. It should be demonstrated that men are given and take more opportunities to perform, are evaluated as performing better (for the same performances), receive more rewards for their actions and have more influence than women (Berger, Rosenholtz & Zelditch, op

cit). It should also be shown that traits that are stereotypically male are seen as more desirable and more influential than those which are typically female. It is therefore necessary to discuss the evidence of this type that can be found within the literature in order to support of the identification of gender as a diffuse status characteristic. There are two main bodies of research that need to be discussed regarding the higher perceived status of men as opposed to women, in order to investigate whether gender does act as a status characteristic. The first area of the literature that will be examined concerns the emergence of leaders in initially leaderless groups (in terms of perceptions of influence). The second body of evidence concerns perceptions of leaders and successful managers in terms of characteristics that are stereotypically male or female.

#### **4.1.1 Sex differences in leadership emergence:**

A substantial amount of research has been conducted regarding the possible existence of sex differences in leader emergence, and the amount of influence accepted and exerted by individuals, in initially leaderless problem-solving groups. Eagly and Karau (1991), in a meta-analysis of research on the emergence of male and female leaders in initially leaderless groups, concluded that men emerged as leaders to a greater extent than did women. Megargee (1969) used a simulation to investigate how social sex role prescriptions influenced the emergence of leadership. Megargee asked mixed sex dyads to complete a simulated industrial task that was solved best by one of the pair adopting the leader role and the other following instructions. The results showed that male participants adopted the leader role in the majority of cases even when a high dominance female participant was paired with a substantially less dominant male (according to the Dominance scale of the California Personality Inventory). In fact only 20% of high dominance women adopted the leadership role when paired with low dominance men. Megargee concluded that dominance

conflicted with sex role, thus inhibiting the assumption of leadership by high dominance women.

Megargee's experiment has been criticised for using a stereotypically masculine task (Carbonell, 1984). It may be that the women who participated in Megargee's experiment were not comfortable adopting the leadership role because of the masculine nature of the simulation. Carbonell (1984) conducted two experiments in order to establish if sex differences existed in leader emergence in ad hoc groups. Carbonell's first study was a direct replication of the experiment conducted by Megargee some 15 years earlier. The results showed that despite the 15 year gap between experiments high dominance females when paired with low dominance males were still significantly less likely to assume a leadership role than high dominance men or high dominance women who were paired with partners of the same sex. Carbonell found that 30% of high dominance women adopted the leadership role when paired with low dominance men. Carbonell's second study investigated leader emergence in mixed sex dyads using a stereotypically feminine task. The results of this second experiment indicated that the Megargee effect may be specific to task as the high dominance participants, regardless of gender, took the leadership role. High dominance women when paired with low dominance men were slightly more likely to take the leadership role (56%) but these results were not conclusive as this difference was not statistically significant. Carbonell concluded that women are generally reluctant to adopt the leadership role regardless of dominance, but that this reluctance may be overcome by manipulation of the nature of the task at hand.

Nyquist and Spence (1986) performed a further replication of Megargee's (1969) experiment using a gender-neutral task. Nyquist and Spence found that 90% of high dominance men in mixed sex pairs emerged as leaders, compared with only 35% of high dominance women. Nyquist and Spence therefore concluded, in accordance with Megargee (op cit) and Carbonell (op cit) that men in mixed sex

dyads emerge more frequently as leader even when their personalities dictate otherwise. Similar findings have also been achieved using simulations in experiments by Dobbins, Long, Dedrick and Clemons (1990) and Hegstrom and Griffith (1992).

It can be recognised, therefore, that there is a reasonable amount of evidence to support the assertion that men are more likely to emerge as leaders in initially leaderless, mixed sex groups. This in turn suggests that men have more influence over a group task than women and thus supports the identification of sex as a status characteristic.

There are a number of studies that have failed to find sex differences in the emergence of leaders in ad hoc problem-solving groups. Fleischer and Chertkoff (1986) performed a replication of Megargee's (1969) experiment using 392 Psychology undergraduates from Indiana University. The results showed that high dominance women paired with low dominance men adopted the role of leader 50% of the time. This is in contrast with only 20% in Megargee's original study. Fleischer and Chertkoff attributed this difference to a combination of the time span between experiments in terms of 'a general increase in acceptance of women as leaders across the country' (p. 98) and the fact that their study was performed in Midwest America rather than the South so was subject to 'regional differences in such attitudes' (p. 98).

Schneier and Bartol (1980) replicated Megargee's simulation using 284 undergraduate students and did not find sex differences in leader emergence. Scheier and Bartol concluded that this may have been due to the fact that the women's actual task ability was known and therefore they were perceived as being as competent as the men in the group. Kent and Moss (1994) conducted a field study using undergraduate students and found that women were actually slightly more likely to emerge as leaders but commented that this result should

be viewed with caution due to the unequal distribution of women in the groups studied and the small amount of variance explained by sex.

Goktepe and Schneier (1989) examined the influence of sex, gender role and interpersonal attractiveness on the emergence of leaders in ad hoc groups. Leadership emergence was assessed over the duration of personnel management or business policy courses at a large university. Goktepe and Schneier concluded that sex was not a predictor of leader emergence but that physical attractiveness and sex role orientation were. This fact that these results differ considerably from those obtained by Megargee (op cit), Carbonell (op cit) and others surely lies in the differences in experimental design, given that this is a field study, in which participants interacted over an extended period of time. It is likely that the group members would have had ample opportunity to interact in ways other than those tested and therefore may have been able to establish a knowledge of each other's actual task competence. This knowledge may have reduced any sex differences in the emergence of leaders in the same way as in the earlier study by Schneier and Bartol (op cit).

On examination of the above evidence, it would appear that gender is only a predictor of leadership emergence in some situations. It may be that the salience of gender as a status characteristic is affected by other information about a woman's expertise in the group task (Wentworth and Anderson, 1984). For instance, if the group task is stereotypically feminine, as was the task in the experiment by Carbonell (op cit), a woman may be perceived as having higher task ability. In a similar fashion, if the group is provided with knowledge regarding a female member's task competence, so that a woman is known to be competent in the group task, then gender is less likely to be utilised as a status characteristic.

Past research therefore provides evidence that gender acts as a diffuse status characteristic within ad hoc problem solving groups. The literature may suggest that women have difficulty emerging as the leader of a group unless they are perceived as having task specific expertise. This provides support for the identification of gender as a status characteristic in that females generally appear less able or willing, compared to men, to exert influence in a task situation. It may therefore be proposed that, in mixed sex groups, and in the absence of specific information regarding a woman's task competence, men are likely to have greater influence over the group decision. This finding alone provides some support for the assertion that gender acts as a status characteristic in newly formed task groups.

#### **4.1.2 Perceptions of successful leaders in terms of stereotypical gender characteristics:**

Berger, Rosenholtz and Zelditch (op cit) have suggested that evidence that sex is a status characteristic 'rests on (a) the high level of agreement among males and females on the traits that differentiate males from females, (b) the more favourable overall evaluation of males, and (c) the larger number of favourable traits attributed to males than females' (p. 494). Males and females are associated with a distinct set of characteristics. Men are commonly described in terms of characteristics such as being aggressive, ambitious, analytical, assertive, athletic, competitive, independent and self-sufficient, whereas women are seen as being affectionate, cheerful, childlike, compassionate, gentle, gullible, loyal, shy and yielding (Bem, 1974).

Past research has shown that those characteristics that are commonly ascribed to men are viewed as more favourable than those that are associated with women, especially when compared to perceived characteristics of successful leaders. Fagenson (1990) has suggested that 'the sex role characteristics

possessed by individuals in organisations are considered to be barometers of how they will fare in these settings' (p. 204). Fagenson goes on to comment that the possession of feminine characteristics is seen as been relatively detrimental while masculine attributes are viewed as being beneficial. If this assertion is true then it may not only provide some insight into the apparent inferiority of women in task groups but may also lend some support to the identification of gender as a status characteristic within these groups. It is therefore necessary to examine the research into perceptions of the characteristics of successful leaders (managers) as compared to those traits that are stereotypically ascribed to males and females.

Schein (1973) examined the association between sex role stereotypes and perceived management characteristics using a sample of 300 male middle managers. Each participant was given a 'descriptive index' that contained 92 adjectives and descriptive terms and was asked to rate each word or phrase on a five point scale according to how characteristic they felt it was of men in general, women in general or middle managers in general. Schein's results demonstrated a significant association between the ratings of men and of managers ( $r = .62$ ), as opposed to virtually no association between the ratings of women and managers ( $r = .06$ ). Schein therefore concluded that successful middle managers are perceived to possess those characteristics, attitudes and temperaments more commonly ascribed to men in general than to women in general. Schein (1975) replicated her 1973 study with female middle managers in order to determine to what extent relationships between sex role stereotypes and requisite management characteristics existed among female middle managers. The results of this study showed a significant resemblance between the ratings of both men and managers ( $r = .54$ ) and women and managers ( $r = .30$ ), however the degree of resemblance between women and managers was significantly less than that between men and managers. These results therefore confirmed the conclusions of Schein's first (1973) study in terms of the



association between sex role stereotypes and management characteristics, and demonstrated that women fostered the same perceptions as men.

Heilman, Block, Martell and Simon (1989) performed a similar experiment to Schein's studies (1973, 1975) studies using an identical Descriptive Index. In this study, managers were asked to describe successful middle managers, women or men in general, women or men managers and women or men successful managers. Heilman *et al* concluded that their results were highly consistent with those of Schein and that 'descriptions of women in general are still far less congruent with descriptions of successful managers than are descriptions of men in general' (p. 939). Heilman *et al* also noted however that the correspondence between descriptions of women and successful managers increases dramatically when the women are depicted as managers, and even more so when they are depicted as successful managers, although women are still perceived differently in terms of business skill and leadership ability.

Brenner, Tomkiewicz and Schein (1989) performed a further replication of Schein's experiments using a sample of both male and female middle managers, and found a disparity between the perceptions of male and female managers. Results for the men confirmed Schein's earlier conclusions that successful middle managers are perceived to possess those characteristics, attitudes and temperaments more commonly ascribed to men in general than to women in general. However, women viewed successful middle managers as possessing characteristics, attitudes and temperaments that are ascribed to both men and women in general. The authors concluded that this finding represented a change in the perceptions of women in that female middle managers now saw women as resembling the way that men in the study perceived men in general to be. Female middle managers also perceived that women possessed many of the characteristics held by successful middle managers. This suggests that perceptions of women, at least in female managers, may be changing over time.

Using a slightly different experimental design, Bass, Krussell and Alexander (1971) asked 174 male managers to rate 56 questionnaire items pertaining to attitudes towards women at work. From their results, the authors identified three dimensions of differentiated perceptions of male and female managers. Firstly, women were perceived as being unable to act as supervisors; secondly, female employees were seen as less dependable than men; and thirdly, it was perceived that women should display deference towards men. Rosen and Jerdee (1978) used the same questionnaire in order to examine the nature of perceived sex differences in managerially relevant characteristics, concentrating particularly on those characteristics important for success and promotion in managerial positions. The results demonstrated perceptions that were consistently favourable toward the employability and promotability of males. Men were perceived as having a greater degree of the leadership and decision-making skills necessary to satisfy managerial objectives, whereas women were perceived as having aptitudes, skills, interests and motivations that were more compatible with routine, clerical tasks. In a similar fashion, men were viewed as being better able to cope with the stress and pressure of managerial roles, whereas women were viewed as being more emotional, timid, jealous and sensitive to criticism than men.

To summarise, past research has shown that women are perceived to have characteristics detrimental to their performance as a leader. It can be seen that perceptions of this type may make group members reluctant to invite or accept contributions from a female and, as such, may serve to increase the amount of influence that a man is allowed over the group task. These findings support the existence of gender as a status characteristic in that, as women are not perceived to possess characteristics consistent with those of a successful leader, they are viewed as being of a lower status. Therefore, in accordance with the principles of status generalisation, group members have lower expectations of a woman's performance than of a man's, and will therefore allow them less influence over the group task.

## **4.2 SUMMARY:**

If the literature on perceptions of successful leaders in terms of stereotypical gender characteristics is combined with the literature on leader emergence in initially leaderless groups, it can be seen that there is a reasonably substantial amount of evidence that gender does indeed act as a diffuse status characteristic. Given that an assessment centre assessor team often includes both male and female assessors, and that according to the principles of status generalisation this should be sufficient to activate gender as a status characteristic, it would appear possible that gender is salient as a status characteristic during the assessor wash-up. If this is the case then it will be expected that female assessors should have less influence over the formulation of the overall assessment rating than will male assessors. This inequality in terms of assessor influence may, in turn, bias the decisions that are made within this group discussion and therefore lead to a less valid rating being produced. It may be that some of the explanation behind the inferiority of a clinically formulated overall assessment rating lies in this process.

## **5.0 ALTERNATIVE PREDICTORS OF INFLUENCE**

Gender, as a status characteristic, may provide a basis of the imbalanced influence structure within a decision making group. If this phenomenon exists within an assessor team, it may help to explain the inferiority of a clinically formed overall assessment rating within an assessment centre. It can be seen that if female assessors are allowed less influence over the wash-up than male assessors, this may lead to a biased overall assessment rating and assessment centre decision. A considerable amount of the literature concerning leader emergence in groups in general (as reviewed in the previous chapter) has demonstrated that women do indeed have less influence over the group task. This evidence lends support to the idea that male assessors may have more influence over the assessor wash-up. However, the findings regarding leader emergence in ad hoc groups are far from consistent. Several authors have failed to find a significant effect of gender on the amount of influence that individuals have over a group task (Schneier & Bartol, 1980; Kent & Moss, 1981; Fleischer & Chertkoff, 1986; Goktepe & Schneier, 1989). Although these authors have explained their findings in terms of time and regional differences (Fleischer & Chertkoff), experimental design (Kent & Moss) and knowledge of actual task competence (Schneier & Bartol), taken in combination they may cast some doubt upon the magnitude of the effect of gender upon influence in task groups. It may be that gender only acts as a status characteristic within particular task groups. It is therefore necessary to establish if gender is salient as a status characteristic within assessor teams, and if it is not, which factors do affect the amount of influence that each assessor has over the consensus discussion.

Parry (1996) conducted a field study in order to investigate the effect of assessor gender upon the relative contribution of individual assessor ratings to the final assessment centre decision. The study failed to find any differences in the degree of influence exerted and accepted by male and female assessors. Parry (op cit) therefore concluded that gender was not acting as a status characteristic

within the assessment centre assessor teams that were included in that study. It may have been that the assessment centre used in that study, or the experimental design, possessed characteristics that reduced the salience of gender within those assessor teams used. Alternatively, this finding may indicate the absence of gender effects in assessment centre decision-making in general. It should also be noted that gender was the only factor that was analysed in this study, in terms of its affect on assessor influence. It may be that there were other assessor characteristics that have an effect upon the influence structure of the group within this scenario. It may be that the female assessors within the utilised assessor teams possessed certain traits that rendered them less likely to be at a disadvantage compared to male assessors. Alternatively, if the assessors were distinguished in terms of characteristics other than gender, it may be that the influence structure in these assessor teams was based upon the distribution of these other characteristics, and therefore that the salience of gender as a status characteristic was reduced within this situation.

If it is true that factors other than status characteristics (gender) can affect the amount of influence that each assessor is allowed over the consensus discussion, it may be that these are the reasons behind the inferiority of a clinically formed decision. It is therefore essential that the nature of these alternative characteristics be investigated. In order to establish which factors, other than status characteristics such as gender, may have an impact in the amount of influence that an assessor is allowed during the assessor wash-up, it is necessary to return to research concerning group decision making in general.

## **5.1 PERSONALITY CHARACTERISTICS AND INFLUENCE**

There has been some discussion in the literature regarding the relationship between personality and behaviour within ad hoc groups. Davies (1994) comments that personal attributes, including sex and personality, 'affect how groups members interact and interrelate with each other' (p. 41). If it is so that interaction within a group is partially dependent on the personalities of group members, then surely the nature of an individual's character may affect the amount of influence that they are allowed within a group situation. Early literature regarding group dynamics however, claimed that personality traits did not differentiate between leaders and non-leaders (Stodgill, 1948; Mann 1959).

Lord, De Vader and Alliger (1986) provided a detailed analysis of the articles by Mann and Stodgill (op cit) and suggested that the results of these articles have been misinterpreted. Lord *et al* noted that Mann's study included consistently significant relationships between a number of personality factors and leadership emergence and that the results of this study may have been interpreted too pessimistically. Lord *et al* re-validated the results of Mann and other more recent researchers using meta-analysis and concluded that certain personality traits were associated with leadership perceptions to a high degree and more consistently than previous literature had indicated.

Driskell (1982) has noted that salient characteristics other than status may have the capacity to structure task interaction and suggests that important among these characteristics are certain personal characteristics. Driskell proposed an extension of the theory of status characteristics and expectation states in order to include these 'valued personal characteristics'. Valued personal characteristics can be defined in a similar manner to status characteristics in that they are differentially evaluated and have preferable and non-preferable states. Therefore it is more desirable to possess one state of a characteristic, rather than the other, in a similar way as status characteristics theory (Berger *et al*, op cit) suggests

that it is preferable to be male than female. Driskell distinguishes valued personal characteristics from status characteristics by the idea that valued personal characteristics have no performance connotations attached to them. While an individual may possess the preferred state of a valued personal characteristic, he or she is not presumed to be more proficient at particular tasks (such as mathematics) because of this. However, the fact that an individual possesses the desirable state of a valued personal characteristic may be processed as 'positive information' and as such become linked to specific task expectations.

Driskell (op cit) has proposed that valued personal characteristics are generalised in much the same way as status characteristics in that they induce expectations for behaviour around which the power and prestige order of the group is based. Therefore, an individual who possesses the preferred state of a characteristic will be awarded higher expectations for behaviour and, in accordance with expectation states theory, will be allowed more influence over the group decision-making process. A valued personal characteristic is however a weaker type of characteristic on which to base task expectations because it is not linked to performance connotations, and as such provides less information. Therefore, a valued personal characteristic may only be used as a basis for performance expectations when other characteristics of individuals are not salient. Driskell (op cit) manipulated the perceived levels of a valued personal characteristic (empathy) in pairs of subjects working on a contrast sensitivity task and recorded which of the pair altered their initial responses to be in accordance with their partner's. Driskell concluded that his results supported the use of valued personal characteristics as the basis for the status generalisation process under conditions in which status characteristics were not salient.

It may be that the power and prestige structure of an ad hoc group is not based solely on status characteristics such as gender, but also on personality characteristics. It can be suggested that these personality characteristics not

only affect the amount of influence that an individual is allowed over a group task, but also that they do so in a similar fashion to status characteristics. Group members may be distinguished in terms of particular aspects of their personalities, and may develop expectation states based on the distribution of these personality characteristics. Individuals will therefore be given opportunities to contribute, reward, and allowed influence based upon these expectations. If personal traits can affect the influence structure of an assessor team in this manner then they may provide a basis for a biased overall assessment rating. It is therefore important that the effect of personality upon influence within an assessor wash-up should be investigated.

It is first necessary to identify which personality traits (or valued personal characteristics) may affect influence within ad hoc groups. Lord, De Vader and Alliger (op cit) found that three personality traits were significantly and consistently related to leadership emergence. These were intelligence, masculinity-femininity and dominance. An examination of past research on influence and leadership emergence in small problem solving groups demonstrates the prominence of two of these characteristics, sex-typing (masculinity-femininity) and dominance. It may be therefore that dominance and sex-typing act in a similar way to status characteristics in ad hoc groups in that they form the basis of performance expectations and therefore affect the amount of influence that an individual is allowed over the group task. The literature regarding these two factors will therefore be examined in order to establish if these characteristics warrant investigation as possible valued personal characteristics within an assessment centre assessor team.



## **5.2 MASCULINITY AND FEMININITY**

Sex typing, in terms of masculinity and femininity, has been identified by Lord, De Vader and Alliger (op cit) as a personality characteristic which does have an impact upon the emergence of leaders in small groups. Indeed, there are a number of authors who have failed to find sex differences in leader emergence, but have found differences in terms of sex typing. For instance, Goktepe and Scheier (op cit) found that sex role orientation was a strong predictor of leader emergence in that individuals with a masculine gender role (i.e. who showed stereotypically male characteristics) are more likely to emerge as leaders. Kent and Moss (op cit) also concluded that gender role (in terms of whether a person displayed stereotypically male or female characteristics) was a better predictor of leader emergence than sex. It may be possible therefore to identify gender role (otherwise known as sex typing) as a valued personal characteristic that may provide a basis for the influence structure within a task group. In order to establish whether sex typing does act in this fashion it is first necessary to take a closer look at sex typing as a personality characteristic.

Traditionally, certain characteristics have been ascribed as being typical of men, while other characteristics have been seen as being typical of women. Those characteristics that are usually ascribed to men can be described as masculine, while those that are usually associated with women can be called feminine. A number of authors have attempted to identify which characteristics are seen as stereotypically male and which are seen as stereotypically female. Williams and Bennett (1975) asked 100 male and female college students to define each of the 300 adjectives employed in the Adjective Checklist (ACL) as being more frequently associated with men than women, or more frequently associated with women than men. This experiment resulted in 33 male adjectives and 30 female adjectives on which at least 75% of the participants agreed. Those adjectives that were described as masculine included adventurous, ambitious, assertive, cruel, courageous, enterprising, independent, logical, realistic, stable, strong and

unemotional. Alternatively, the feminine list of characteristics included affectionate, charming, dreamy, fickle, fussy, gentle, meek, prudish, sensitive, sophisticated, weak and whiney. It can be seen therefore that this experiment established a distinct set of masculine and feminine traits. In a similar fashion, Bem (1974) developed the Bem Sex Role Inventory (BSRI) that consists of two 20-item scales representing masculinity and femininity. A personality characteristic was qualified as masculine if it was judged to be more desirable for a man than a woman, and as feminine if it was judged to be more desirable for a woman than a man. The masculinity and femininity scales of the BSRI contain similar items to those identified in the Williams and Bennett (op cit) study. For example, the masculinity scale contains items such as aggressive, competitive, forceful, self-reliant and self sufficient, whereas the femininity scale contains items such as cheerful, childlike, gentle, gullible, shy and tender. In general therefore, masculinity and femininity can be defined in terms of a number of qualities that are perceived as stereotypically male or stereotypically female.

Bem (op cit) has noted that 'masculinity has been associated with an instrumental orientation, a cognitive focus on 'getting the job done'; and femininity has been associated with an expressive orientation, an affective concern for the welfare of others' (p.156). Earlier research has presumed that sex typing exists as a dichotomy with masculinity and femininity at opposite ends of a continuum. Therefore men have been seen as being more likely to possess masculine (instrumental) traits and that women are more likely to display feminine (expressive) traits. However, recent work regarding masculinity and femininity has challenged traditional assumptions that tie these personality characteristics to biological gender (Jackson, 1983). The current view maintains that an individual, regardless of sex, may possess both masculine and feminine traits (Bem, op cit; Spence, Helmreich and Stapp, 1975).

It may therefore be that the reasons behind the absence of sex differences in leader emergence in some studies (Goktepe & Schneier, op cit; Kent and Moss,

op cit) and in the earlier study regarding assessor teams (Parry, op cit) lie in the sex typing of the group members in those studies. If the development of performance expectations in these groups is actually based upon the possession of sex typed characteristics as opposed to sex per se, then it may be that those group members who display more masculine traits will be allowed more influence over the group discussion, regardless of their biological sex. Therefore a woman who possesses a high degree of masculine traits should be able to exert a relatively large amount of influence within a group scenario. Given that sex differences in leadership emergence have been found in earlier studies but not in more recent studies, it may be that the modern woman is less likely to display traditionally feminine characteristics than those women in the earlier studies. This assertion has been supported by Sachs, Chrisler and Devlin (1992) in their examination of female managers in the United States. Sachs *et al* asked 95 female managers to complete a personality survey and found that most of these managers displayed high degrees of masculinity. Powell and Butterfield (1979) asked 684 students to complete the Bem Sex Role Inventory for a 'good manager'. The majority of their participants described a 'good manager' in masculine terms.

On a more general note, Broverman, Vogel, Broverman, Clarkson and Rosenkrantz (1972) found agreement by both males and females that the socially desirable characteristics of adults were masculine. Falbo (1977) investigated the relationship between sex, scores on the Bem Sex Role Inventory and social influence and found that individuals who were high in masculinity received more positive peer ratings than those who were high in femininity. This suggests that high levels of masculinity are generally seen as more desirable than high levels of femininity. With reference to Driskell's (op cit) extension of the theory of status characteristics and expectation states, it may be that masculinity and femininity can be viewed as valued personal characteristics. Given that high masculinity appears to be viewed as desirable (Broverman *et al*, op cit; Falbo, op cit), it could be suggested that high masculinity is the desirable state of this

personal characteristic and therefore that individuals who display high masculinity should be awarded higher performance expectations and therefore should be allowed more influence over the group task. This assertion is supported by the previously cited findings that individuals who were high in masculinity are more likely to emerge as leader (Goktepe and Schneier, op cit; Kent and Moss, op cit) and that a good manager (leader) is seen as masculine (Powell and Butterfield, op cit). The evidence concerning sex typing and leadership is not however completely consistent. Gurman and Long (1992) compared the effects of masculinity and femininity on rater and ratee evaluations of emergent leader behaviour in mixed sex groups and failed to find an association between masculinity and peer-rated leadership.

With the exception of these studies, the literature regarding the effect of masculinity and femininity on influence is relatively sparse. Past research has focused solely on the relationship between masculinity and leadership emergence. Given that masculinity and femininity have recently been defined as separate constructs (Bem, op cit) it is perhaps surprising that the impact of levels of femininity per se on influence has not been investigated. The incompleteness of the literature regarding the effects of masculinity and especially femininity on influence within an ad hoc group gives rise to several opportunities for research. With reference to the current research program, it appears possible that the sex typing of assessors, in terms of the levels of both masculinity and femininity that they possess (regardless of sex), may have an impact upon the amount of influence that they are allowed over the consensus discussion. If this is so then it provides another possible basis for the inferiority of a clinically formed overall assessment rating. It is essential therefore that the nature of the relationship between both masculinity and femininity and influence should be investigated.

### **5.3 DOMINANCE**

The second personality characteristic that has been identified by Lord, De Vader and Alliger (op cit) as having an impact upon the emergence of leaders in small problem solving groups is that of dominance. Dominance can be defined as a person's effort to control or manipulate the behaviour of another (Maccoby & Jacklin, 1974), so a 'dominant' individual may be an individual with the tendency to try and control the behaviour of others.

Some authors have concentrated on dominance behaviour as the centre of theories that directly challenge the theory of status characteristics and expectation states. These theorists argue that status hierarchies in task groups largely arise from the competitive interdependence that is induced by individuals' basic behavioural impulses for power and dominance over others (Ridgeway, 1987). Lee and Ofshe (1981) suggest that people react to dominance behaviour by others in a learned, stimulus response fashion by automatically deferring to the individual exhibiting the dominance behaviour. Rosa and Mazur (1979) assert that another group member may challenge an individual who is displaying dominance behaviour to a 'dominance contest'. In this case, the more dominant of the two individuals will be deferred to. It can be seen that these theories suggest that the more dominant group members will be allowed more influence over the group task and will therefore occupy a higher position in the power and prestige order of the group.

This effect of dominance on influence in task groups has been supported by studies of leadership emergence. Megargee, Bogart and Anderson (1966) conducted an experiment to investigate whether dominance (according to the Dominance scale of the California Personality Inventory) could predict which of two individuals would emerge as leader when performing an industrial task. The participants were asked to complete three scales from the California Personality Inventory (Dominance, Communality and Good Impression) and were then

categorised as high dominance or low dominance according to their scores on the dominance scale. The participants were then divided into pairs, one member of which was high dominance and one was low dominance and asked to complete a task that was best performed if one individual acted as leader and the other as follower. The person who directed the task was defined as the dominant person and was predicted to have the high dominance score. For 90% of the teams the partner with the high dominance score adopted the leader role. Megargee *et al* therefore concluded that dominance (in terms of the Dominance scale of the California Personality Inventory) could predict emergent leadership.

The findings of Megargee *et al* have been widely supported in same sex groups. Megargee (1969) replicated his earlier study using both men and women and found that 75% of high dominance men and 70% of high dominance women (in same sex groups) took the leader role. Further replications of Megargee's experiments in all male or all female dyads have produced similar results. For example, Nyquist and Spence (1986) found that 73% of high dominance individuals emerged as leader. The effect of dominance on leader emergence in same sex groups has also been supported by Fleischer and Chertkoff (1986) and Hegstrom and Griffith (1992).

As has already been reported in the last chapter, the impact of dominance on leader emergence in mixed-sex dyads is not so clear-cut. Megargee (op cit) reported that high dominance women when paired with low dominance men are reluctant to take the role of leader and concluded that dominance conflicts with sex-role in these situations. While high dominance women paired with low dominance men are less likely to take the leader role than high dominance men with low dominance women or high dominance men or women in single sex dyads, there are a couple of points which should be made regarding this phenomenon. The reluctance of women to exert influence may be less evident in particular circumstances (Carbonell, 1984) and in particular regions of the world

(Fleischer & Chertkoff, 1986). This reluctance may also not be so apparent in modern society (Fleischer & Chertkoff, op cit). This suggests that in certain situations, dominance may have more impact upon the emergence of leaders in mixed sex task groups. Even if the conflict between sex role and dominance is taken into account, it cannot be denied that dominance does appear to have a significant effect upon leader emergence in small groups.

The impact of dominance upon influence has also been supported by studies of male and female managers. A number of studies have suggested that managers tend to demonstrate relatively high levels of dominance (Wilson, 1968; Rawls & Rawls, 1974), and more specifically that female managers are more dominant than female non-managers (Morrison & Sebold, 1974). Brenner and Greenhaus (1979) compared the personalities of male and female managers and non-managers, using the Personality Research Form (Jackson, 1974). The results demonstrated that managers did tend to be more dominant than non-mangers, regardless of sex. These studies may indicate that individuals who adopt positions of influence (such as a manager) generally possess higher levels of dominance than those with less influence (non-managers). This therefore lends support to the assertion that individuals who display high dominance have more influence than those who are less dominant.

Given that dominant individuals appear to have more influence than less dominant individuals, it may be possible to define dominance as a valued personal characteristic. If high dominance is taken to be the desirable state of the characteristic then the existence of dominance as a valued personal characteristic is supported by studies of leader emergence (Megargee, 1966, 1969; Nyquist & Spence, 1986; Fleischer & Chertkoff, 1986; Hegstrom & Griffith, 1992) and studies of male and female managers (Brenner & Greenhaus, 1979), as has been previously discussed. It could be predicted that assessors who

show high levels of dominance will have more influence over the consensus discussion in an assessment centre. Given that dominance does not correspond to expertise or ability in this situation, if this is so then it may provide further insight into the inferiority of a clinically formed overall assessment rating.

## **5.4 SUMMARY**

Gender does not always affect the influence hierarchy of a task group, including an assessment centre assessor group (Parry, op cit). It is therefore necessary to identify other factors that may have an impact upon the amount of influence that an assessor is allowed over the consensus discussion in an assessment centre. It has been suggested in the literature that certain personality characteristics may act in a similar fashion to status characteristics in that they are generalised to create expectation states upon which the relative power and prestige order of a task group is based (Driskell, op cit). The personality traits that have been identified as having an effect on influence in ad hoc groups include masculinity, femininity and dominance. The definition of these factors as 'valued personal characteristics' (Driskell, op cit) has been supported by studies on leader emergence and male and female managers.

It may be suggested that if the members of an assessor team differ in terms of dominance, masculinity or femininity, then performance expectations of these members may be based around these differences. Therefore those individuals who demonstrate high dominance, high masculinity or low femininity may be awarded higher performance expectations and as such be allowed more influence over the assessor wash-up. It can be seen that if a phenomenon such as this does occur, this may bias the decisions that are made by the assessor team and therefore reduce the validity of the overall assessment rating and the final assessment centre decision. It is therefore important that the nature of the



relationship between dominance, masculinity and femininity and influence is investigated.

## **6.0 PURPOSE OF STUDY**

The overall purpose of this study was to improve the validity of the assessment centre decision making process by examining possible areas of bias within the final stage of this process, the clinical formulation of the overall assessment rating. If weaknesses within this procedure could be identified, steps may be taken to overcome them and therefore to improve the validity of the overall assessment rating.

More specifically, this study focused on the impact of a number of characteristics of the assessor team on the amount of influence that each assessor has over the consensus discussion in an assessment centre. An examination of the literature on group dynamics in general identified gender, masculinity, femininity and dominance as characteristics of assessors which may affect the amount of influence that each assessor has over the decision making process. This study therefore proposed to establish the nature of the relationships between these four factors and influence, with a view to identifying the source of any imbalance of influence within the assessor group.

The study was designed to investigate a number of main hypotheses.

- **Male assessors will have more influence over the consensus discussion than will female assessors.**
- **Assessors who demonstrate high masculinity will have more influence over the consensus discussion than will assessors who demonstrate low masculinity, regardless of sex.**
- **Assessors who demonstrate high femininity will have less influence over the consensus discussion than will assessors who demonstrate low femininity, regardless of sex.**

- Assessors who demonstrate high dominance will have more influence over the consensus discussion than assessors who demonstrate low dominance.

The study was also designed to investigate the relationships between the predictor variables, and therefore will examine the relationships between gender, masculinity, femininity and dominance. It was possible that the relationships between these predictors are more complex than direct relationships between variables. It may have been that masculinity, femininity or dominance actually mediated the effect of sex upon influence. For instance it may have been that males tended to be more dominant and that dominant individuals had more influence so males appeared to have more influence overall. It was necessary to investigate indirect effects such as this if the effect of the group composition upon influence is to be understood. The present study therefore attempted to establish the relationships between the predictor variables (sex, dominance, masculinity and femininity) and the criterion variable of influence.

## **6.1 METHODOLOGICAL CONSIDERATIONS**

This investigation adopted a two-stage research strategy in order to examine the impact of a number of factors in influence and to establish whether the demonstrated effects (if any) are generalisable to all assessment centres. The purpose of the first study was to isolate those factors that had been identified as having a possible impact on influence within assessor teams, and to examine the relationships between these factors and influence. As has already been discussed, the variables that were investigated are sex, dominance, masculinity and femininity. In order to establish the relationships between these characteristics of assessors and the amount of influence that an assessor is allowed over the consensus discussion in an assessment centre, it was essential that a considerable amount of control be achieved over the experimental

situation. It was therefore important to adopt an experimental design that has a high degree of internal validity.

The term 'internal validity' was introduced by Campbell and Stanley (1963) and was defined as 'the basic minimum without which any experiment is uninterpretable' (p.5). An experiment is said to have internal validity if the obtained differences within a criterion variable such as influence can be attributed directly to the predictor variables such as sex, masculinity, femininity and dominance (Crano & Brewer, 1973).

Cook and Campbell (1979) have listed a number of factors that may act as a threat to the internal validity of an experiment. A number of these issues may be discussed with reference to study one. Firstly, Cook and Campbell (op cit) define *history* as when an observed effect may be due to an event other than that which is of interest for the experiment. The insulation of participants from outside influences (within a laboratory) can control this threat. Secondly, *maturation* is a threat when an observed effect may be due to the participants growing older, wiser or more experienced during the course of the experiment. The third and fourth threats that Cook and Campbell (op cit) list are those of *testing* and *instrumentation*. Testing becomes a threat when the same test is used repeatedly to the extent that the participants may become familiar with it. An effect of instrumentation may occur when the relationship between a predictor and criterion variable is due to a change in the instrumentation used. The next factor on Cook and Campbell's (op cit) list of threats to internal validity is what they term '*regression*' (p.52). This refers to the tendency of participants that have been selected on the basis of their high scores to perform at a lower level and 'regress to the mean' when re-tested. Internal validity may also be threatened by the *selection* of particular types of participants into experimental groups. The final threat to internal validity in Cook and Campbell's (op cit) list is that of *mortality*. This refers to any effects that are caused by participants dropping out of the experiment.

In order to address these threats to internal validity, it was decided that study one should consist of a simulation of an assessment centre. The use of a totally simulated environment, with no outside influences whatsoever, along with the random selection of participants and the use of standardised tests should minimise the threats to internal validity (Campbell & Stanley, op cit). Therefore, the first study in this research project was a laboratory-based simulation of an assessment centre, designed to examine the relationships between sex, dominance, masculinity and femininity and their impact on influence within assessor teams.

## **7.0 METHOD**

### **7.1 OVERVIEW**

The experimental hypotheses were investigated using a simulation of the assessment centre process. Volunteer participants were asked to act as assessors and to individually rate three candidates performing an assessment centre exercise. Each group of participants was then asked to resolve their individual ratings into a joint set of ratings using a consensus discussion. Following the simulation a number of measures regarding the relative influence of each 'assessor' during the consensus discussion were taken. In addition to influence, measures of masculinity, femininity and dominance were taken.

### **7.2 PARTICIPANTS**

The participants for this study consisted of 102 volunteers from the general population (51 male, 51 female). Participants were recruited as the result of a mail-shot and advertising to the surrounding geographical area. Each participant was paid ten pounds.

Participants were divided into 34 groups of 3. 17 of these groups contained one male and two females and 17 contained one female and two males. Three person groups were used in order to maximise the number of groups that could be obtained from the available participants. These groups contained both men and women so that sex should be salient as a status characteristic. It was ensured that no two participants within the same group had had any previous interaction or had any knowledge of each other. It was also ensured that no participants had prior experience of being an assessor within an assessment centre or other selection scenario.

### **7.3 DEVELOPMENT OF THE SIMULATION**

Participants were presented with a video of three confederates performing an assessment centre exercise. The three confederates were male MSc students at Cranfield University who had volunteered to act as candidates for the purpose of his study.

The three 'candidates' completed a group exercise during which they were asked to choose between three sites for a fictional shop selling toys. These three sites were within the London Airports at Gatwick, Heathrow and Stansted. The 'candidates' were presented with a variety of sources of information on the three possible sites and some information regarding the utility of retail outlets in airports in general. The confederates discussed this information in order to reach a consensus decision as to where the location of the new shop should be (see Appendix A for the full exercise). This discussion was recorded for use in the simulation study. The duration of the tape was approximately 15 minutes.

#### **7.3.1 Pilot Study:**

Prior to use in the actual study, the tape was shown to 11 volunteers as a pilot study. Each volunteer was asked to rate each of the three 'candidates' on four competencies, on a seven point scale (seven was defined as the high degree of a competency). These competencies were Communication, Influencing, Information Use and Problem Solving. The purpose of this pilot was to ensure that the exercise generated a wide spread in terms of scores. A variety of ratings were required in order to generate discussion between assessors within the main study.

The scores were examined in terms of descriptive statistics, in particular the standard deviations of the scores for each candidate.

Table (1) means and standard deviations of scores given during the pilot study (means in italics).

	Communication	Influencing	Information Use	Problem Solving
Candidate 1	1.75	2.15	0.93	1.62
	4.36	4.27	5.45	5.27
Candidate 2	1.21	1.29	1.12	1.04
	4.36	5.55	5.36	5.45
Candidate 3	1.75	2.29	1.63	2.25
	5.55	4.36	3.63	3.64

This examination demonstrated that the exercise was generating a sufficiently wide spread of scores. The videoed exercise was therefore accepted for use in the main simulation study.

7.4 SIMULATION STUDY

Participants were asked to imagine that they were assessors selecting candidates for a management-training scheme within a large company. The participants watched the video of the three confederates performing the group discussion exercise and were asked to rate each 'candidate' according to his performance in terms of the four competencies. As with the pilot study, these competencies were Communication, Influencing, Information Use and Problem Solving. These four competencies were selected because they are commonly used in real life assessment centres and can be easily understood by the participants. Participants were provided with definitions of these competencies (see Appendix B). Participants rated the candidates on an eight -point scale with seven meaning that a candidate displayed a great deal of evidence of that competency and zero that he displayed little evidence of



that competency. A seven-point scale was used in order to ensure that a range of scores was generated so that it was less likely that participants would agree in terms of their ratings. Participants were also asked to rate each candidate out of seven in terms of overall suitability. Participants were instructed that overall suitability was not simply a combination of their other scores, but that they could include their feelings and instincts about the candidates within this rating. Participants were asked to mark their ratings on the forms provided (Appendix B).

Once the participants had rated the three candidates performance individually, they were then asked to discuss their ratings within the group. Participants were instructed to resolve the ratings that they had made individually into a single set of ratings that the group agreed on. Participants were not given a time limit for this task but were told that they must reach a consensus by the end of the discussion (Appendix C). The discussions generally took between fifteen minutes and one hour. Each discussion was recorded (with the participants' consent) for future reference.

Following the consensus discussion, each participant was asked to rate themselves and the other two group members in terms of the amount of influence that each of them had over the decision-making process. These ratings were on an eight -point scale in a similar fashion to the candidate ratings (Appendix D).

## **7.5 MEASURES**

### **7.5.1 Influence**

Four measures were used in order to assess the amount of influence that each participant had over the consensus discussion.

*Self-ratings:* Participants were asked to rate themselves on an eight-point scale according to the amount of influence that they felt they had had within the group.

***Other ratings:*** Participants were rated by the other two members of the group, according to the amount of influence they were perceived to have had over the group discussion. A mean of the ratings given by the other two participants in the group was calculated for each participant and used in the analysis.

***Correlation scores:*** A correlation was taken between each participant's individual set of ratings and the group's resolved set of ratings, as a measure of the association between each participant's ratings and the group ratings.

***Difference scores:*** The absolute difference between each participant's individual set of ratings and the group's resolved ratings was calculated, as an alternative measure of association between each participant's ratings and the groups ratings.

### **7.5.2 Dominance**

***California Personality Inventory (CPI250):*** Each participant completed the California Personality Inventory (Gough, 1957). The version used (CPI250) consisted of 250 items, comprising 19 scales. Each item consisted of a statement (e.g. 'I like poetry'). Participants were asked to state whether they agreed or disagreed with each statement by responding true or false. This questionnaire took approximately 45 minutes to complete. Only the Do (dominance) scale was included in the analysis for the present study.

***Personality Research Form (PRF Form E):*** Each participant completed the Personality Research Form (Jackson, 1966). The version used (Form E) consisted of 352 items, comprising 22 scales. Each item consisted of a statement (e.g. 'I like to be in the spotlight'). Participants were asked to state whether they agreed or disagreed with a statement by responding true or false. This questionnaire took approximately one hour to complete. Only the Do (dominance) scale was included in the analysis for the present study.

### **7.5.3 Masculinity and femininity**

*Bem Sex Role Inventory (BSRI)*: Each participant completed the Bem Sex Role Inventory (Bem, 1974). This questionnaire consisted of 60 items, 20 of which were masculine, 20 were feminine and 20 were neutral. Each item was comprised of a personality characteristic (e.g. 'tender'). Participants were asked to rate each item on a seven-point scale according to how true of them each characteristic was. The questionnaire took approximately five minutes to complete.

*Personal Attributes Questionnaire (24 item PAQ)*: Each participant completed the Personal Attributes Questionnaire (Spence, Helmreich & Stapp, 1974). The version used consisted of 24 items, comprising three scales. Participants were asked to assess where they felt they fall on a continuum between two opposite statements (e.g. 'not at all aggressive' and 'very aggressive') on a five-point scale. This questionnaire took approximately five minutes to complete.

The personality questionnaires were administered using a standardised introduction for each questionnaire (Appendix E). The Personality Research form was administered prior to the simulation. Once the simulation had been completed the Personal Attributes Questionnaire was administered, followed by the Bem Sex Role Inventory and the California Personality Inventory. The questionnaires were administered at two separate times in order to prevent the participants from tiring. No time limit was set for any questionnaire.

## 8.0 RESULTS

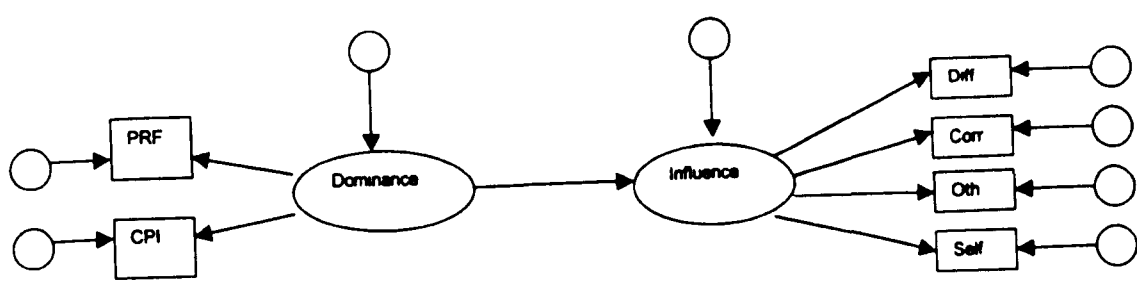
### 8.1 STRUCTURAL EQUATION MODELLING

Structural equation modelling (SEM) as a statistical technique is generally used to examine a series of dependence relationships simultaneously. There are two characteristics that distinguish SEM from other multivariate techniques. Firstly, SEM involves the estimation of multiple and interrelated dependence relationships (Hair, Anderson, Tatham & Black, 1998). The predicted associations between variables are specified in the same way as the present study has predicted relationships between sex, masculinity, femininity, dominance and influence. These relationships are then translated into a series of structural equations for each dependent variable. This network of relationships is known as the *structural model*.

The second characteristic of SEM is its ability to represent unobserved constructs within these relationships and to account for measurement error in this process. These *latent variables* can be defined as 'hypothesised and unobserved concepts that can only be approximated by observable or measurable variables'. (Hair *et al*, op cit, p.585). The model in the present study contained the latent variables of masculinity, femininity, dominance and influence. Each latent variable is measured using a number of *observed variables*. For example, in the present study, two observed variables, the *Do* scale on the California Personality Inventory and the *Do* scale on the Personality Research Form measured dominance. Given that these measures are not totally reliable, it is impossible to measure the construct of dominance perfectly. Indeed any measurement tool is subject to a degree of *measurement error*. Measurement error is accounted for within the *measurement model* that assesses the association between each latent variable and its predictors and calculates the reliability of these predictors.

The first step in SEM is to develop a theoretically based model by identifying the causal relationships that may exist between constructs. In the present study, this model consisted of the hypothesised relationships between sex,

masculinity, femininity, dominance and influence. This model should then be visually presented in a path diagram. To use a section of the model in study one as an example, the hypothesised relationship between dominance and influence can be presented as shown in Figure 1.



**Figure 1: Example of a path diagram**

The latent variables of dominance and influence are represented using an ellipse, while the observed variables that measure these constructs are represented by rectangles. The measurement error for each variable is shown as a circle. The variables are linked by a series of arrows that show the direction of the relationships between them. For instance, it can be seen that dominance is hypothesised to have an impact on influence.

The strength of the relationships between variables and the overall fit of the model to the data is examined using a series of structural equations. When the reliability of the measures is not known, as in the model in the present study, it is recommended that the measurement and structural models should be investigated separately (Anderson & Gerbing, 1988). The measurement model should be investigated first in order to establish the reliability of the observed variables. If necessary, the measurement model can then be modified in order to optimise the reliability of the measures. Once this has

been completed, the relationships between the latent variables (structural model) can be examined.

## 8.2 MEASUREMENT MODEL

The reliability of the measurement model was assessed using a form of SEM called Confirmatory Factor Analysis (CFA). CFA examines the association between variables in a similar manner to Factor Analysis. However, whereas Factor Analysis is mainly exploratory in nature, CFA is used to confirm the relationships between variables that have been specified by the researcher. In the present study, CFA was used to confirm the relationships between each latent construct and the observed variables that have been specified to measure that construct.

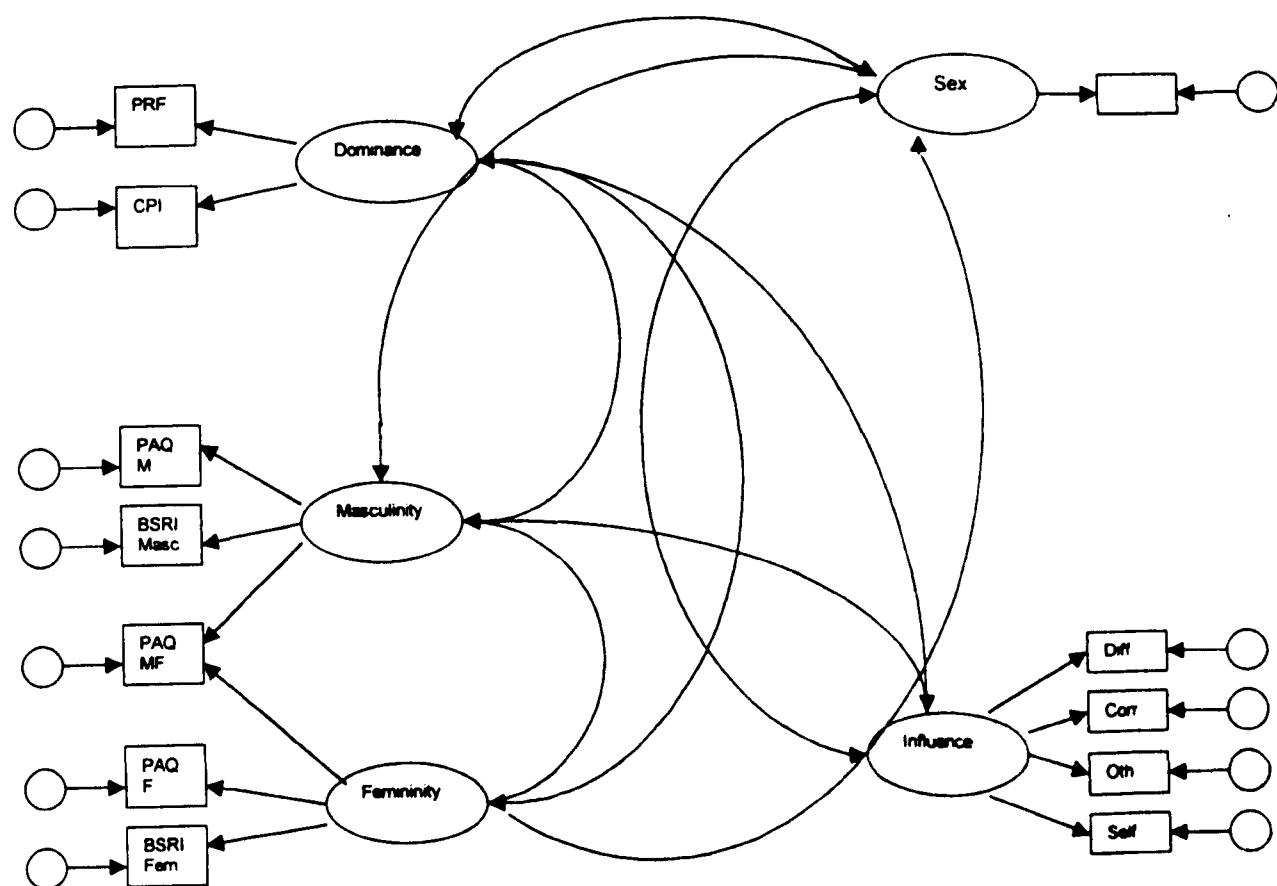


Figure 2: The initial measurement model.

The measurement model was designed to assess the effectiveness of the chosen tools at predicting the observed variable of sex and the latent variables of dominance, masculinity, femininity and influence. It can be seen from the path diagram that the latent variable of dominance was measured using two predictors, the Personality Research Form (PRF) and the California Personality Inventory (CPI). These two predictors were hypothesised to load solely onto dominance. Masculinity was measured using three predictors' the M scale of the Personal Attributes Questionnaire (PAQ M) and the Masculinity scale of the Bem Sex Role Inventory (BSRI Masc), which loaded solely onto Masculinity, and the MF scale of the Personal Attributes Questionnaire (PAQ MF), which loaded onto both Masculinity and Femininity. The MF scale of the Personal Attributes scale is a uni-dimensional, bipolar scale on which high scores indicate masculinity and low scores indicate femininity, so was a predictor of the latent variables of both masculinity and femininity. Femininity was also measured by the F scale of the Personal Attributes Questionnaire (PAQ F) and the Femininity scale of the Bem Sex Role inventory (BSRI F), which contributed solely to femininity, and the MF scale of the Personal Attributes Questionnaire that contributed to both masculinity and femininity.

The latent variable of influence was measured using four predictors, as indicated on the diagram. These predictors were self-ratings (Self), ratings from other members of the group (Oth), the correlation between a participant's individual ratings and the group ratings (Corr) and the difference between a participant's individual ratings and the group ratings (Diff).

Each latent variable was measured using a number of observed variables. As the reliability of these measures was not known, the use of more than one observed variable for each latent variable allowed the estimation of the reliability of each measure (Hair *et al*, op cit). Sex was presumed to have been measured perfectly as it is a variable that can be easily observed. It was therefore designated an error term of 0 for the purpose of study one.

**Table (2): Summary of the Measurement Model**

Number of Parameters	Chi square	Degrees of Freedom	Probability	Chi square/DF	Goodness of Fit Index	Adjusted Goodness of Fit Index
34	90.434	44	0.000	2.055	0.880	0.788

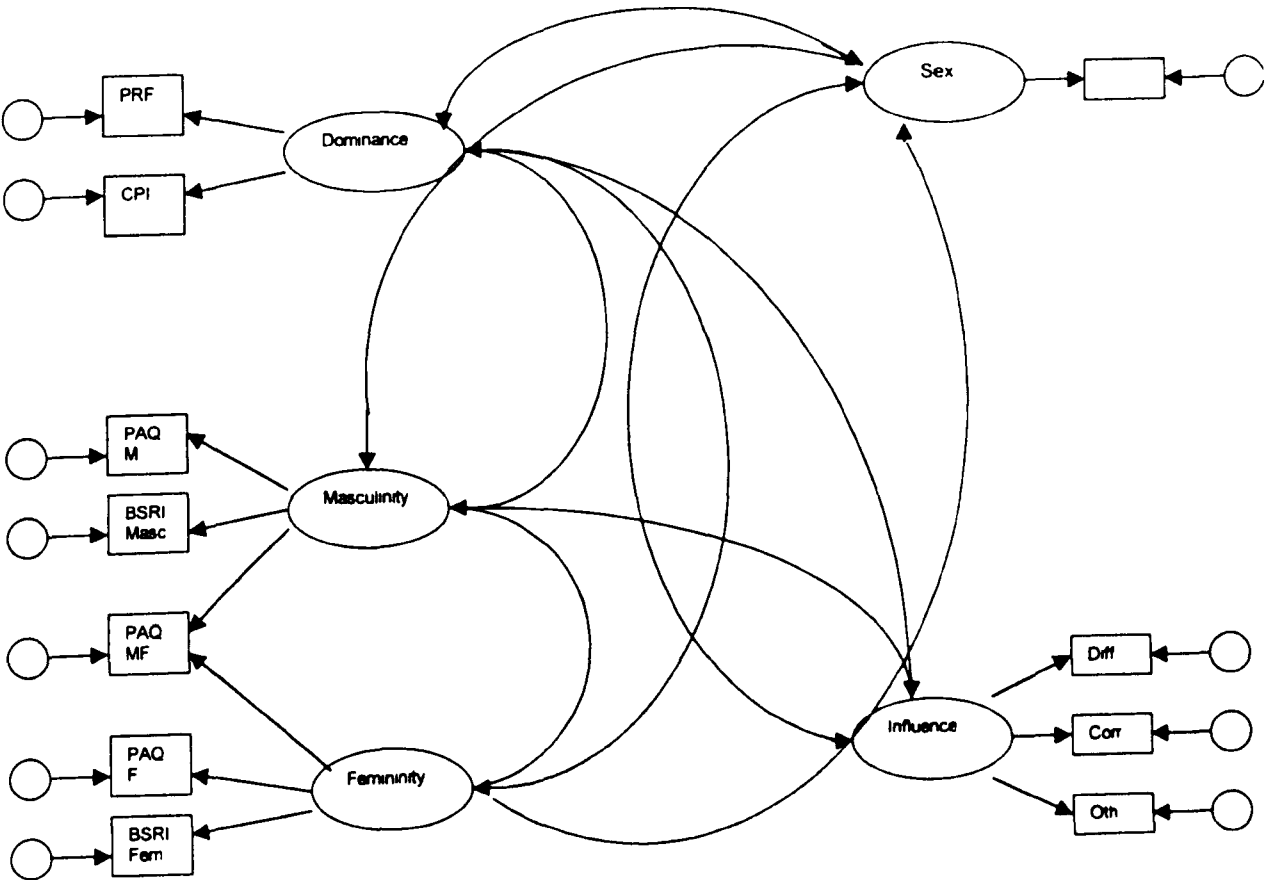
The fit of a model to the data was assessed by the examination of the chi-squared value, the goodness of fit index (GFI) and the adjusted goodness of fit index (AGFI). A good fit would have been indicated by a non-significant chi-squared value, a GFI of over 0.8 and an AGFI of over 0.9. It can be seen therefore, from the above summary, that this model was not a good fit of the data.



**Table (3) shows the regression weights and standardised regression weights for the paths in the measurement model.**

<b>Path</b>	<b>Regression Weight</b>	<b>Standardised Regression Weight</b>
Biological sex ← sex	0.500	1.000
PRF Dominance ← Dominance	4.408	0.950
BSRI Masculinity ← Masculinity	0.736	0.931
CPI Dominance ← Dominance	4.256	0.837
PAQ M ← Masculinity	3.273	0.824
Correlation ← Influence	0.211	0.771
BSRI Femininity ← Femininity	0.513	0.765
PAQ F ← Femininity	2.847	0.698
Difference ← Influence	- 0.252	- 0.674
Other ratings ← Influence	0.619	0.657
Self Ratings ← Influence	0.550	0.492
PAQ MF ← Masculinity	2.028	0.485
PAQ MF ← Femininity	-1.863	-0.445

In order to assess the strengths of the individual paths within the model it was necessary to examine the regression weights. A lower standardised regression weight indicated a weaker relationship between the observed variable and the latent variable suggesting that the observed variable was not contributing sufficiently to that latent variable to warrant its inclusion in the model. An examination of the standardised regression weights in the present model demonstrated that the relationship between self-ratings and influence was relatively weak. It was decided therefore to drop this predictor and to assess the effect of this modification on the overall fit of the model.



**Figure 3: The revised measurement model**

**Table (4) shows the regression weights and standardised regression weights for the revised measurement model.**

Path	Regression Weight	Standardised Regression Weight
Biological sex ← Sex	0.500	1.000
PRF Dominance ← Dominance	4.409	0.951
BSRI Masculinity ← Masculinity	0.737	0.931
Correlation ← Influence	0.249	0.910
CPI Dominance ← Dominance	4.254	0.837
PAQ M ← Masculinity	3.273	0.824
BSRI Femininity ← Femininity	0.535	0.798
PAQ F ← Femininity	2.726	0.669
Difference ← Influence	-0.235	-0.630
Other ratings ← Influence	0.525	0.557
PAQ MF ← Masculinity	2.027	0.485
PAQ MF ← Femininity	-1.822	-0.436

**Table (5): Summary of Revised Measurement Model**

Number of Parameters	Chi Square	Degrees of Freedom	Probability	Chi Square/DF	Goodness of Fit Index	Adjusted Goodness of Fit Index
32	44.614	34	0.105	1.312	0.929	0.862

It can be seen from table (5) that the fit of the model improved dramatically as a result of removing self-ratings as a predictor of influence. The results of the revised model showed a non-significant chi-squared vale, a GFI over 0.9 and an AGFI over 0.8, indicating that the revised measurement model was a good

fit of the data. It was therefore decided that the revised measurement model would be utilised in the present study.

8.3 STRUCTURAL MODEL

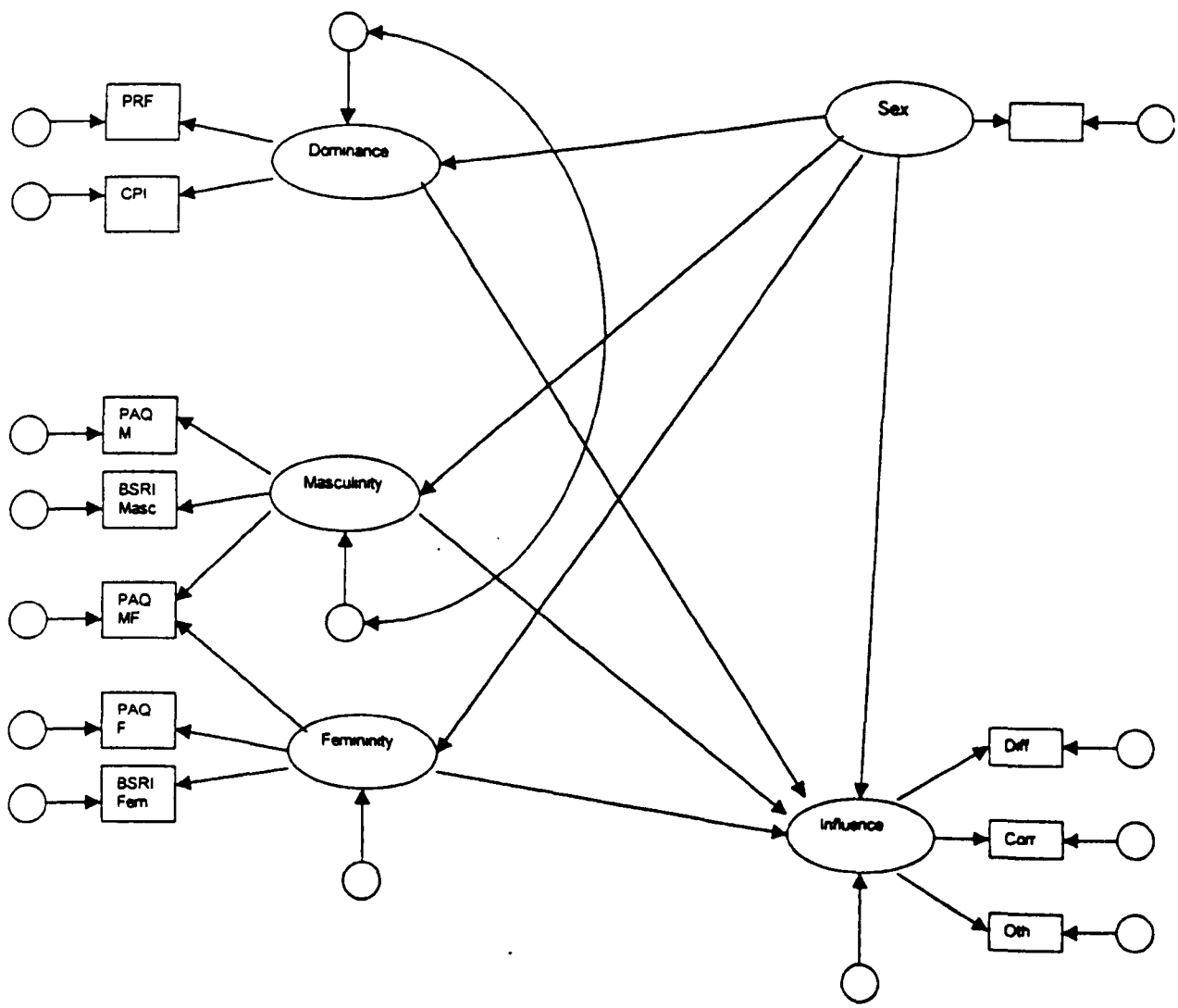


Figure 4: The structural model

The structural model was designed to investigate the relationships between the latent variables and in particular to examine which of the latent variables predicted influence. The paths in the model represented the hypotheses that sex would have a direct effect on dominance, masculinity, femininity and influence and that dominance, masculinity and femininity would have a direct effect on influence. The model also indicated that there may be an indirect effect of sex on influence by paths via dominance, masculinity or femininity.

An examination of the correlations between measures suggested that there was some association between dominance and masculinity. It was therefore necessary to represent this some way within the model. Wothke (personal correspondence 1999) advised that this relationship should be represented as correlated error terms. Therefore the error terms of dominance and masculinity were shown as correlated in the structural model.

**Table (6): Summary of Structural Model**

Number of Parameters	Chi Square	Degrees of Freedom	Probability	Chi Square/DF	Goodness of Fit Index	Adjusted Goodness of Fit Index
30	44.920	36	0.146	1.248	0.928	0.869

It can be seen from the above table that an analysis of the structural model produced a non-significant chi-squared value, a GFI above 0.9 and an AGFI above 0.8. The structural model therefore demonstrated a good fit with the data.

**Table (7) Details of the paths in the structural model**

<b>Path</b>	<b>Regression weights</b>	<b>Standardised regression weights</b>	<b>Standard error</b>	<b>Critical ratio</b>
Sex → Dominance	2.846	0.323	0.871	3.269
Sex → Masculinity	0.444	0.301	0.148	2.991
Sex → Femininity	-0.369	-0.345	0.121	-3.045
Sex → Influence	-0.081	-0.162	0.059	-1.373
Dominance → Influence	0.025	0.448	0.015	1.681
Masculinity → Influence	-0.124	-0.366	0.090	-1.381
Femininity → Influence	-0.198	-0.426	0.066	-3.025

An examination of the individual paths within the model demonstrated that only the latent variable of femininity was shown to have a significant direct impact on influence. This relationship was inverted indicating that those individuals who demonstrate a high degree of femininity had less influence within the group discussion.

Sex was shown not to be a predictor of influence. Sex also did not demonstrate a significant indirect effect on influence, via the other predictors of dominance, masculinity or femininity. Furthermore, dominance and masculinity did not demonstrate significant effects on influence.

## **9.0 DISCUSSION AND CONCLUSIONS TO STUDY ONE**

The present study was designed to assess the effect of a number of characteristics of assessors upon the amount of influence that each assessor was allowed over the consensus discussion within an assessment centre. The factors investigated were the status characteristic of gender and the personality characteristics of dominance, masculinity and femininity. Previous research, outlined in sections 3, 4 and 5, has shown that, in small ad hoc groups, these characteristics may affect the amount of influence that each group member has over the group task. The literature has shown that individuals who are male, high in dominance or masculinity, and low in femininity are allowed more influence within the group. Despite the considerable amount of research dedicated to these factors in group-decision-making in general, their impact within an assessment centre assessor group has received virtually no attention in the literature. The purpose of the present study therefore was to assess the effect of gender, dominance, masculinity and femininity upon the relative contribution of assessors to the formulation of the overall assessment rating within an assessment centre.

It was hypothesised that assessors who were male, high in dominance or masculinity and low in femininity would have more influence over the consensus discussion within an assessment centre. The indirect effect of sex on influence, via the other three variables, was also investigated.

### **9.1 SUMMARY OF FINDINGS**

The path analysis shown in figure 3 and the results described in tables (6) and (7) demonstrated that a good fit with the data was obtained as the result of the simulation study. This indicates that the relationships shown in the structural model were similar to the relationships apparent in the data from the simulation study.

It was suggested in the structural model that the characteristics of sex, masculinity, femininity and dominance would have a direct effect upon the amount of influence that a participant was allowed over the consensus discussion. The path analysis showed however that only one of these factors demonstrated a significant relationship with influence, that of femininity. This relationship was in the predicted direction in that participants who demonstrated higher femininity had less influence. The three variables of sex, masculinity and dominance failed to demonstrate a direct relationship with influence. This suggests that sex, level of masculinity or level of dominance did not have an impact upon the amount of influence that a participant was allowed during the consensus discussion.

It is also possible to assess the indirect effects of a variable by combining the regression weights of the individual paths. For instance, it is possible to establish the indirect effect of sex on influence as a result of sex affecting masculinity and masculinity affecting influence by combining the regression weights of the paths between sex and masculinity and masculinity and sex (table 7). The indirect paths via dominance (0.144), masculinity (−0.110) and femininity (0.147) were also not significant. It can be seen from the results therefore that sex also did not have an indirect effect on influence.

It is necessary to examine these findings in the light of past research regarding group dynamics in general in order to establish their significance with regard to group decision making in assessor teams.

## **9.2 GENDER AND INFLUENCE**

It has been well documented in the literature on group dynamics that the power and prestige structure within a task group may be affected by the status characteristics of group members. The theory of status characteristics and expectation states suggests that differences between individuals in terms



of status characteristics lead to unequal performance expectations, in that those who possess the desirable state of any characteristic will be awarded higher expectations and as such will be allowed more influence over the group task (Berger, Wagner and Zelditch, 1983; Berger, Fisek, Norman & Zelditch, 1977). By far the most well researched status characteristic is that of gender, or biological sex. There is substantial evidence to show that, as male is the more desirable state of this characteristic, men are ascribed higher status and as such are allowed a greater degree of influence over the group task (Webster & Foschi, 1988; Meeker & Weitzel-O'Neill, 1977; Lockheed & Hall, 1976). It was therefore predicted that, in an assessment centre, male assessors would be allowed more influence than female assessors over the consensus discussion. The present study, however, failed to find a significant direct or indirect effect of assessor sex on the amount of influence that an assessor had over the wash-up. This study therefore fails to support the findings of Webster and Foschi (op cit), Meeker and Weitzel-O'Neill (op cit) and Lockheed and Hall (op cit) in terms of the identification of gender as a status characteristic in mixed-sex groups.

The impact of gender upon the influence structure of a task group has been further reported in the literature on group decision-making in general. This support has been provided by studies of leader emergence in that a man is more likely to emerge as the leader of an ad hoc group than is a woman (Megargee, 1969; Carbonell, 1984;). The lack of a relationship between sex and influence in the present study would suggest however that assessors of either sex are equally likely to emerge as leader, therefore also failing to support these findings. Further evidence regarding the effect of sex on influence has been provided by studies regarding perceptions of successful managers. Schein (1973, 1975) found that successful middle managers were perceived to possess characteristics, attitudes and temperaments more commonly ascribed to men than to women. Given that it may be expected that individuals who are seen as being like managers should have more influence, it can be said that the results of the present study also do not support these findings. If the male assessors in the present study were perceived as being similar to successful managers, while the females were

not then they may be expected to have had more influence. The results demonstrate however this was not the case.

It can therefore be concluded that the assertion that female assessors will have less influence than male assessors has not been supported in the present study.

### **9.2.1 The absence of gender as a status variable**

Given that there is substantial evidence that sex does act as a status characteristic in task groups and that men have more influence than women in mixed-sex groups, the failure to support this assertion in the present study must be investigated. It is therefore necessary to examine the possible reasons behind the lack of a relationship between sex and influence in assessor teams in the present study.

There are a number of other studies that have failed to find differences in the amount of influence that was exerted by men and women in ad hoc groups (Kent & Moss, 1994; Fleischer & Chertkoff, 1986; Schneier & Bartol, 1980). These authors have suggested a number of reasons behind their failure to find sex differences in influence. Schneier and Bartol (op cit) suggested that the lack of sex differences in leader emergence in their study was due to the fact that the actual task ability of the participants was known and therefore performance expectations were based on this rather than on sex. Given that steps were taken in the present study to ensure that participants had no prior knowledge of each other, this is unlikely to be a concern.

Fleischer and Chertkoff (op cit) ascribed their failure to find sex differences in leader emergence to two factors. Firstly, the fact that their study was performed in a different geographical location to earlier studies, and secondly that it was performed a considerable amount of time later when attitudes toward women as leaders may have changed. It is possible that these two factors also had an effect in the present study. Indeed, previous studies

regarding leader emergence in ad hoc groups have been carried out in the United States and were conducted some considerable time ago. It is possible that attitudes toward women change according to location and that women as leaders have become more widely accepted over time. This may therefore be one reason behind the failure to find sex differences in the present study.

Alternatively, it may be that sex differences in influence do not occur in assessor groups in general. Parry (1996) investigated the impact of sex upon influence within an assessment centre assessor group and failed to find any significant relationship between the two. The results of the present study support these findings and as such support the assertion that sex differences in influence may not exist in assessment centre assessor teams. It is therefore necessary to look at the characteristics of the assessment centre situation in order to establish why this may be so. Previous research regarding leader emergence in ad hoc groups has suggested that the nature of the task may have a mediating effect on the effect of sex on the amount of influence that an individual is allowed, in that women are more likely to emerge as leader when the task was feminine or gender-neutral in nature than when it was masculine (Carbonell, op cit; Nyquist and Spence, 1986). It could be therefore that being an assessor is viewed as a feminine or gender-neutral task. If this is so it may provide an explanation for the lack of sex differences in the present study. Research into the gender typing of the task of being an assessor is needed in order to establish if this assertion is valid.

### **9.3 ALTERNATIVE PREDICTORS OF INFLUENCE**

Given that the present study failed to find sex differences in the amount of influence that assessors had over the consensus discussion, it is important to examine the impact of characteristics other than sex upon influence. It may be that as sex was not salient as a status characteristic in the present study and that the participants were differentiated on other factors that provided the basis for expectation states. Driskell's (1982) theory of 'valued personal characteristics' suggested that personality characteristics can act in the same

way as status characteristics as they are differentially evaluated and possess desirable and non-desirable states. People who possess the desirable state of any valued personal characteristic will be awarded higher performance expectations and as such be allowed more influence over the group task. It may be therefore, that in the absence of gender as a salient status characteristic, the influence structure of an assessor group is based upon the distribution of particular personality characteristics. The present study examined the effects of three personality characteristics upon influence. These were dominance, masculinity and femininity.

### **9.3.1 MASCULINITY AND FEMININITY**

Past research on influence in task groups has identified sex typing, in terms of masculinity and femininity, as having an impact upon the amount of influence that an individual is allowed over the group task (Lord, De Vader & Alliger, 1986). A number of the studies that have failed to find sex differences in leader emergence have found differences in terms of sex typing. Studies by Goktepe and Schneier (1989) and Kent and Moss (1994) demonstrated that gender role was a better predictor of leader emergence than sex in that masculine individuals were more likely to emerge as leaders. It may be therefore that the influence structure in assessor groups is based upon the masculinity and femininity of assessors rather than biological sex.

Past authors have noted that masculine characteristics are more socially desirable (Broverman, Vogel, Clarkson & Rosenkrantz, 1972) and that masculine individuals receive higher peer ratings than those low in masculinity (Falbo, 1977). This may suggest that if masculinity is viewed as a valued personal characteristic (Driskell, op cit) then high masculinity is the more desirable state of that characteristic. It was therefore predicted in the present study that participants who demonstrated high masculinity would have more influence over the consensus discussion in the simulation study. However, the results of this study did not demonstrate any relationship between

masculinity and influence, therefore failing to support this prediction and previous research.

It was also predicted that individuals who were high in femininity would have less influence over the consensus discussion. This assertion was supported in the present study as a significant negative relationship between femininity and influence was obtained. The results of the present study demonstrated therefore that individuals who were high in femininity, regardless of sex, had more influence over the formulation of the overall assessment rating.

There are a number of points that can be made about these findings. The failure to find an effect of masculinity on influence in the present study can be explained in terms of the nature of the utilised task in a similar way to the failure to find sex differences. It may be that masculinity is only salient in situations that are masculine in nature. This is partially supported by the fact that Goktepe and Schneier (op cit) used a business task that could be said to be masculine in nature. Kent and Moss (op cit) however used a gender-neutral task. To date, the gender typing of the task of being an assessor has not been investigated so it is unclear as to whether the task is viewed as masculine, feminine or gender-neutral. More research regarding this suggestion is needed.

The finding that assessors who are high in femininity, regardless of biological sex, have less influence than those with lower femininity can be explained by an examination of the traits associated with femininity. The characteristics of feminine individuals have been suggested defined to include gentle, meek, weak, gullible and shy (Bem, 1974; Williams & Bennett, 1975). Bem (op cit) has also noted that femininity tends to be associated with an affective concern for the welfare of others. It may be suggested therefore that feminine individuals may be concerned with reaching agreement within the group and promoting satisfaction in other group members, rather than arguing for their own individual opinions. Values of this kind may lead to a tendency of the assessor to cooperate with the other assessors and therefore appear less influential. Given that previous research has focused on the relationship

between masculinity and influence rather than the relationship between femininity and influence these findings warrant further investigation.

### **9.3.2 DOMINANCE**

Past authors have suggested that dominance behaviour may be the basis of the influence structure in task groups (Lee & Ofshe, 1981; Rosa & Mazur, 1979). This assertion is supported by early studies on leadership emergence that have shown that (in same sex groups at least) a dominant individual is more likely to emerge as leader than a less dominant individual (Megargee, Bogart & Anderson, 1966; Megargee, 1969; Nyquist & Spence, 1986; Fleischer & Chertkoff, 1986; Hegstrom & Griffith, 1992). Research regarding the characteristics of male and female managers has also supported the suggestion of a relationship between dominance and influence, in that managers have been shown to display relatively high levels of dominance (Wilson, 1968; Rawls & Rawls, 1974; Morrison & Sebald, 1974; Brenner & Greenhaus, 1979). It may be therefore that dominance acts as a valued personal characteristic (Driskell, op cit) with high dominance being the desirable state.

It was predicted that assessors who demonstrated high levels of dominance would be allowed more influence over the consensus discussion in the simulation study. However, the present study failed to find a significant relationship between dominance and influence so this assertion was not supported.

The literature regarding the relationship between dominance and influence has shown that this relationship is not clear-cut. Past research has shown that the impact of dominance on influence may be moderated by other factors such as the sex of the individuals involved (Megargee, 1969). Past research has concentrated on the relationship between sex and dominance as predictors of influence. It may be that other factors are also capable of

reducing, or even removing the effect of dominance on influence under certain conditions. This suggestion needs further examination.

#### **9.4 LIMITATIONS OF THE SAMPLE AND EXPERIMENTAL DESIGN**

While the findings of the present study may be used to make inferences about assessment centre assessor teams in general, there are a number of characteristics of the experiment itself that indicate that the above results should be accepted with caution.

It is important that the size of the sample used in the present study be taken into consideration. The suggested rules of thumb regarding sample size in structural equation modelling are not consistent between authors. Anderson and Gerbing (1988) have suggested that 100-150 is the minimum sample size for structural equation modelling, while Hair, Anderson, Tatham and Black (1999) recommended a sample of at least 200 and Boomsma (1982) asserted that a sample of at least 400 should be used. The above results were based upon a sample size of 102 participants. This therefore meets the requirements for structural equation modelling as suggested by Anderson and Gerbing (op cit) but not those proposed by Hair *et al* (op cit) or Boomsma (op cit). Given that the sample size does not satisfy all of the suggested rules of thumb, it is necessary to accept the results cautiously. In order to be confident of the reliability of these results, the present study should be replicated with a larger sample.

It should also be noted that the present study involved a simulation and as such used volunteers as participants. It may be that volunteers have particular personal characteristics that in turn may affect the results of the study. This is an important point in light of the failure of the present study to find effects that are strongly supported elsewhere in the literature. It should also be recognised that while the simulation in the present study may be used to represent the decision making process in an assessment centre, it is impossible to re-create this process exactly. A simulation is useful in that it

allows the researcher to have control over the variables that are of interest. It may be however that there are factors in a real life assessment centre that were not present in the simulation. It is therefore necessary to establish if the effects that were found in the simulation study are present in real life assessment centre decision-making. The second study will therefore involve a field study of an assessment centre.

## **9.5 SUMMARY**

It was predicted that sex, dominance, masculinity and femininity would have an effect upon the amount of influence that an assessor is allowed over the consensus discussion in an assessment centre. This was investigated using a simulation of the assessment centre decision-making process. The study did not demonstrate a direct or indirect effect of sex upon influence, therefore failing to support this hypothesis. This also does not support the relatively large amount of evidence in the literature that sex acts as a status characteristic in groups, in that men are generally allowed more influence over a group task. The present study also did not find any effect of dominance or masculinity on influence therefore also failing to support the prediction that individuals who were high in dominance or masculinity would be allowed more influence over the consensus discussion. This finding is also opposed to the evidence from past research.

The only factor that was found to have a significant impact upon influence was femininity. The results demonstrated that group members who showed high levels of femininity had less influence over the consensus discussion. This can be explained by an examination of the characteristics associated with femininity in that feminine individuals are concerned with the promotion of cooperation and harmony within the group.

The results of this study may be viewed with some caution due to the relatively low sample size and the fact that the participants were volunteers. It is necessary to establish if the findings of the present study are generalisable



to a real life assessment centre. Study two will therefore consist of a field study designed to validate the results of study one.

## **10.0 VALUE OF EXPERIMENTAL FINDINGS**

The findings of the first study suggested that there was no relationship of sex, dominance and masculinity with the amount of influence that an assessor had over the formulation of an overall assessment rating. The results of study one also showed that femininity did have an impact upon the amount of influence that an assessor was allowed in that assessors who demonstrated high femininity had less influence over the consensus discussion. If these results are taken at face value, then it can be suggested that the findings are true of all assessment centres. It could be presumed that sex, masculinity and dominance never have an effect on influence in an assessment centre and that assessors who have higher femininity always have less influence over the assessor wash-up. This may be true. However, it must be recognised that the failure to find an effect of sex, masculinity and dominance upon influence, contradicted the large body of research regarding group dynamics in task groups. The fact that the findings of study one were not in accordance with previous research suggests that these results should be viewed with some caution. It is therefore necessary to examine the nature of the study itself in order to establish if there are any factors that may affect the validity of the findings.

A number of issues including task type and sample size have already been discussed in chapter nine. While these concerns remain important when considering the value of the findings of the first study, they will not be examined any further in the present chapter. In order to establish whether the findings of study one demonstrated sufficient validity to be accepted as true of assessment centres in general, it is necessary to investigate the nature of the experimental design itself. It is important in any research that suitable data is collected on which to base conclusions regarding the areas of interest. It has been noted in the literature on experimental design that while a considerable amount of attention is often paid to the analysis of data; little attention is paid to the methods used to collect adequate and proper data on which to base this analysis (McCall, 1923; Campbell & Stanley, 1963). Therefore, before any assertions may be made regarding the validity of the

findings of study one, it is essential that the nature of the adopted experimental design should be examined.

## **10.1 THE USE OF A SIMULATION STUDY**

The goal of study one was to investigate how the characteristics of sex, dominance, masculinity and femininity were related and to establish which of these, if any, had an impact upon the amount of influence that any one assessor had over an assessment centre wash-up. In order to achieve these goals it was essential that the chosen research strategy could be used to isolate the factors of interest and examine the relationships between them. Therefore a certain amount of control was needed over the research environment. The need for control over events suggested that a laboratory-based experiment was required for use in this study (Robson, 1993). An experiment allows the situation be manipulated so that the variables of interest can be isolated and measured in order to be investigated. It was for these reasons that a simulation of an assessment centre was used in the first study.

There are a number of factors that may affect the value of the findings of an experimental study such as the simulation used in study one. In order to ascertain whether a causal relationship between variables does exist (for instance if femininity genuinely has an impact on influence) it is necessary to establish if the experiment itself has sufficient *internal validity* (Robson, op cit). Campbell and Stanley (op cit) have suggested a number of threats to internal validity that have been discussed in chapter six. Given that study one was a laboratory-based simulation study, history is unlikely to have had an effect on the validity of the results. Maturation is also unlikely to have threatened the internal validity in this case as the simulation was of a relatively short duration. The same measures were used for all of the participants in study one and repeated measures were not used, therefore avoiding difficulties due to testing and instrumentation. The random selection of participants and random allocation of participants to groups makes any negative effects due to

regression or selection unlikely. Finally, mortality was not a threat to internal validity in the first study as no participants withdrew from the simulation.

It can be seen therefore from the above discussion of those factors which have been described as threats to internal validity that study one may be said to have had relatively high internal validity. Indeed, it is the positive results in terms of internal validity that makes the use of a simulation such as this attractive. The fact that the simulation used in study one does appear to demonstrate high internal validity suggests that the findings of this study can be accepted at least in terms of the immediate situation. Therefore, it can be said that, in this simulation, participants who showed higher femininity had less influence over the consensus discussion. However, it cannot be presumed that these findings are true of all, or indeed any, real life assessment centres. For research to be valuable in an applied sense, it must be relevant to situations other than the experimental scenario. It is essential that this issue of generalisability, or *external validity*, should be discussed before any conclusions regarding the value of the findings of study one can be drawn.

## **10.2 EXTERNAL VALIDITY**

Campbell and Stanley (op cit) have used the phrase 'external validity' to describe the generalisability of experimental findings. Campbell and Stanley (op cit) suggest that it should be asked of any experimental findings 'to what populations, settings, treatment variables and measurement variables can this effect be generalised?' (p.5). If the findings of some research can be generalised to other populations, settings and variables, then these findings can be said to have external validity. Given that the purpose of study one was to make conclusions regarding influence in assessor wash-ups in general, it can be suggested that external validity is of great importance to this study. It may be that assessors with high femininity had less influence over the consensus discussion in the simulated assessment centre, but is this true of assessment centres in general? In order to establish whether the results of

the first study can be generalised to other assessment centres and assessors, it is necessary to assess the external validity of these findings.

Campbell and Stanley (op cit) have suggested that the problems of external validity are not solvable in any neat, conclusive way, as generalisation 'always turns out to involve extrapolation into a realm not represented in one's sample' (p.17). Campbell and Stanley go on to explain that logically one cannot generalise beyond the limits of the specific conditions of the experiment, but one does attempt generalisation by assuming that the laws which are relevant to the wider scenario are known.

Campbell and Stanley (op cit) suggest that the need for greater external validity is actually a need for the conditions of the experimental situation to be as close as possible to the conditions of the real life situation that the findings will be generalised to. The simulation in the first study was designed to represent the assessment process in a real life assessment centre. The participants in study one observed a number of candidates performing an assessment centre exercise, rated those candidates individually and finally resolved their ratings using a consensus discussion. This process is indeed similar to the one used in a real life assessment centre, but is this correspondence enough for the experimental findings to have external validity?

It has been suggested that laboratory experiments by definition lack external validity as the controlled environment used in an experiment of this type make it difficult to generalise the results to any setting other than those laboratory conditions (Robson, op cit). Bannister (1966) has criticised the use of laboratory experiments in the study of human behaviour. 'In order to behave like scientists we must construct situations in which our subjects are totally controlled, manipulated and measured. We must cut our subjects down to size. We construct situations in which they can behave as little like human beings as possible and we do this in order to allow ourselves to make statements about the nature of their humanity' (p.24). While the findings of laboratory experiments may demonstrate a high degree of internal validity

therefore, it appears that this may be at the expense of the generalisability, or external validity, of the results. If the findings of the present research, or indeed any applied research, are to be generalised to other settings (such as assessment centres in general), it is essential that the issues that may affect external validity be addressed.

Le Compte and Goetz (1982) have suggested that there are four main threats to external validity. The first of these threats is concerned with the *selection* of participants. There is a danger that the findings of an experiment are specific to the group of participants that have been selected for use in the study. Therefore any causal effects which have been found, such as the effect of femininity on influence in the present research, will only be found within this participant group and cannot be generalised to other groups of individuals. Campbell and Stanley (op cit) have also suggested that 'selection-specificity' may be a threat to the external validity of research findings and assert that this possibility becomes more likely as the difficulty in getting participants for an experiment increases. It is true that some difficulty was encountered during the recruitment of participants for the present research. Crano and Brewer (op cit) have suggested that there are two characteristics of experimental participants that may reduce the generalisability of the research findings. Firstly, in experiments such as the simulation in the present research, the participants are aware that they are under observation. It may be that the responses of an individual who is aware that he or she is under observation are very different to those of an individual who is not aware of this fact. Indeed, this awareness may become the most salient aspect of the experimental situation. Crano and Brewer (op cit) suggest that the results of experiments such as this should be viewed with extreme caution. Secondly, Crano and Brewer (op cit) suggest that the use of voluntary subjects may affect the external validity of research findings. This is supported by the Rosenthal and Rosnow's (1969) finding that volunteers possess particular characteristics when compared to non-volunteers, in that they are better educated, have higher occupational status, higher need for approval, higher intelligence and better adjustment than non-volunteers. It would appear therefore, that there are a number of issues regarding the

selection of the participant group that may have an impact on the generalisability of research findings. While the participants in study one were selected from the general population rather than from a particular group, they were voluntary participants. Therefore it may be that the external validity of the findings has been compromised in this manner.

The second threat to external validity as suggested by Le Compte and Goetz (op cit) is concerned with the *setting* of the experiment. It is possible that the experimental findings are specific to the particular context in which the study took place. It is therefore important to consider whether the research findings can be generalised to settings of interest such as a real life assessment centre in the present research. Cook and Campbell (op cit) have suggested that the way to establish if the external validity of findings is affected in this way is to vary the experimental setting and analyse for a causal relationship in each. It may therefore be necessary to repeat the present research in order to establish if the setting is an issue.

Le Compte and Goetz's (op cit) third threat to validity is that of *history*. In particular circumstances the unique historical and cultural experiences of groups may lead to the presence or absence of particular effects. Given that the participants in study one were taken from the general population in the United Kingdom, history is not likely to be an issue in the present research. Finally, Le Compte and Goetz (op cit) suggest that the *constructs* used in an experiment may affect the external validity of the findings. Verbal instructions and written instruments (such as the questionnaires used in study one) may not be comprehended in the same way or to the same degree by all participants. The instructions in the simulation study were in simple English and the questionnaires were widely used English language questionnaires. Given that the participants all resided in the same geographical area, it is unlikely that a construct effect would be found in the present research.

It may be suggested that fact that the simulation study used in the present research was a controlled laboratory experiment may indicate that the external validity of the experimental findings can be questioned. An

examination of a number of threats to external validity (Le Compte & Goetz, op cit) has shown that the findings of this study may be subject to selection or setting-specificity effects, but are unlikely to be affected by history or construct effects. If the finding that femininity has a negative impact upon influence in assessor groups is to be generalised to assessment centres in general, it is essential that the external validity of these findings be investigated.

### **10.2.1 Increasing external validity**

Robson (op cit) has asserted that there are two general strategies for establishing whether experimental findings have a satisfactory degree of external validity. These are 'making a case' (p. 72) and direct demonstration.

Robson (op cit) had described how making a case is concerned with the persuasion that it is reasonable for the results to be generalised. This involves the use of arguments that the participants and setting are representative in that they share particular characteristics with the target group or setting. In terms of the simulation study used in the present research, there are a number of issues which can be presented in order to 'make a case' for the external validity of the findings of this study. The simulation study was designed to represent a real life assessment centre as closely as possible. The candidate exercise, competencies and assessor instructions were based on those used in a real assessment centre. The fact that this setting was a direct simulation of the target setting is in itself an argument in favour of the external validity of the experimental findings. In terms of the setting therefore, it may be argued that that findings can be generalised to a real life assessment centre.

There are however a number of issues that must be discussed that suggest that the external validity of the results of study one is questionable. It should be noted that there might be differences between the participants in the simulation study and assessors in a real assessment centre. An assessor in



a real assessment centre will have been specifically selected and trained for the role of an assessor, whereas the participants in the simulation study were volunteers who received only minimal instruction with regard to the assessment task. It must also be taken into account that the motivation of the participants and real assessors to perform the task may be different.

Assessors in a real life assessment centre may place more value onto the task, as they are selecting individuals for a real position within the organisation that they are a part of. These two factors regarding the selection and motivation of the assessors suggests that the findings of the simulation study may lack external validity and that they may not be generalised to a real life assessment centre. It is therefore necessary to provide a more direct test of the external validity of these experimental findings.

The second strategy for examining the external validity of research findings, as suggested by Robson (op cit) is that of direct demonstration. Robson (op cit) describes direct demonstration as carrying out a further study involving some other type of participant or another setting. Given that the target setting in terms of generalising the results of study one is an assessment centre, the most effective way of establishing the external validity of the findings of this study may be to use data from a real assessment centre. The use of a real assessment centre would overcome the issues concerning the selection and motivation of assessors. It is suggested that if the effect of femininity on influence that was found in the simulation study could be reproduced in a real assessment centre, this finding will be shown to have external validity. The second study of the present research will therefore consist of a field study designed to investigate the impact of femininity on assessor influence within a real assessor wash-up.

It should be remembered that internal and external validity tend to be inversely related (Robson, op cit) so that the use of a field study in order to ensure external validity will in turn lead to less control over the experiment and as such lower internal validity. It is important that this should be taken into consideration when assessing the value of experimental results. However, if similar findings are found in two differently designed experiments,

one designed to promote internal validity and one to promote external validity, it may be suggested that these findings have some value. An inverse relationship between femininity and influence was found using an experimental design that has been argued to have reasonable internal validity. The second study in this research will attempt to add a degree of external validity to these findings.

### **10.3 SUMMARY AND PURPOSE OF STUDY TWO**

The findings of the first study in the present research demonstrated that assessors with high levels of femininity would have less influence over the consensus discussion in an assessment centre. Given that these findings were obtained using a highly controlled laboratory-based simulation of an assessment centre, they may be presumed to have relatively high internal validity. However, the value of these results is more questionable in terms of external validity or generalisability. Despite the fact that the simulation study was designed to closely represent the assessment process in a real assessment centre, possible differences between the selection and motivation of the assessors and participants indicates that the experimental findings may lack external validity.

The purpose of the second study is to establish whether the findings of study one can be generalised to a real assessment centre. The impact of femininity upon an assessor's influence during the consensus discussion will be investigated in order to establish the external validity of study one's findings. Given the substantial amount of literature supporting the existence of an effect of sex on influence in task groups in general, it may be seen as somewhat surprising that an effect of sex was not found in the simulation study. For this reason, the field study will also attempt to replicate this finding as well as the finding that assessors with high femininity have less influence over the decision-making process. Due to practical considerations concerning the assessors' willingness to complete questionnaires because of the time and

effort involved, the personality characteristic of dominance was not included in study two.

The experimental hypotheses will therefore be:

- There will be no effect of sex on the amount of influence that an assessor has over the consensus discussion.
- Assessors who show high femininity will have less influence over the consensus discussion than those who show lower femininity.

## **11.0 METHOD**

### **11.1 OVERVIEW**

The information required for this study was taken from archive records of the performance of candidates who applied for positions on the Management Training Scheme and Actuarial Training Scheme of Standard Life Financial Services, during the period of September 1996 – June 2000. From here onwards, Standard Life Financial Services will be referred to as 'the client organisation'.

The data were gathered from candidate rating sheets. These consisted of a series of ratings from each assessor (that is on each exercise) for each candidate's performance with regard to a number of assessment centre competencies. These ratings provided the basis for the decision of whether to hire or reject a particular candidate.

### **11.2 PARTICIPANTS**

The present study utilised data regarding those candidates who participated in the relevant assessment centres, and the assessors who rated these candidates, during the said period. All candidates were first-degree graduates who had applied for positions within the Management or Actuarial training schemes. Because of the rationale behind the study, only those candidates for whom the final assessment decision was reached by consensus discussion were used.

Assessors were all employees of the client organisation. The assessor teams consisted of both male and female assessors who were either management level or above or were employees within the Personnel department.

Assessor performance was continuously monitored on an informal basis by the Personnel department of the client organisation. Those assessors who were perceived as not performing to a satisfactory standard were excluded

from further assessment centres. This assessment of assessors was carried out on an informal basis in that there was no structured evaluation of assessors. An assessor who was identified as not being of a suitably high standard to continue (for instance if they produced biased ratings) would not be asked to act as an assessor in the future.

### **11.2.1 Selection of candidates to the assessment centre**

Candidates for the Management and Actuarial training schemes were selected for the assessment centre on the basis of two pre-screening stages. Firstly, the candidates were assessed on the basis of the application form that they had completed. Candidates who were successful at this stage were invited to participate in a telephone interview. This interview, known as a *Gallup interview*, consisted of a series of structured questions that were designed to identify strengths in relation to the personal attributes that were required to achieve success in the targeted position. Following this interview candidates were either invited to attend an assessment centre or declined at this point.

## **11.3 PROCEDURE**

During both the managerial and actuarial assessment centres, each candidate was assessed on a number of competencies via the use of several exercises. These competencies and exercises were specific to the Management or Actuarial assessment centre, as they had been developed via an analysis of the relevant job role. Given that the two assessment centres could be described as equivalent in terms of format and exercises, they were treated as one for the purpose of this study. However, the details of the assessment centres will be discussed separately below.

### **11.3.1 Management training scheme assessment centre**

Candidates for the Management training scheme were assessed against ten criteria during the course of the assessment centre. These competencies were customer focus, leadership, preference for action, strategic thinking, decision making and judgment, contribution to results, teamwork, people development, professionalism and business integrity, and openness to ideas (see Appendix F).

This assessment centre utilised three exercises. Due to confidentiality issues the exercises cannot be discussed in detail. A brief overview of the exercises is given below.

**1. Case Study:**

This exercise was designed to assess customer focus, leadership, preference for action, strategic thinking and decision-making and judgment. Candidates were given a variety of information and were asked to make a number of decisions based on this data. They were then asked to present this data to an assessor. The marking of this exercise involved two assessors one of whom was purely involved in asking questions about the candidate's presentation while the other rated the candidate.

**2. Criterion based interview**

This exercise was a semi-structured interview, based around the competencies of contribution to results, leadership, teamwork, people development, customer focus and professionalism, and business integrity. The marking of the interview involved two assessors one of whom acted as the interviewer and the other of whom rated the candidate.

### **3. Group discussion exercise**

This exercise was designed to assess teamwork and openness to ideas. The candidates were asked to discuss an issue as a group. A single assessor marked each candidate.

Candidates for the Management training scheme also completed the Advanced Managerial Tests for numerical and verbal analysis. These tests are off the shelf aptitude tests designed to assess an individual's verbal or numerical ability. The candidates' scores on these tests were used as an additional guideline to the consensus discussion.

### **11.3.2 Actuarial training scheme assessment centre**

Candidates for the Actuarial training scheme were assessed against eleven competencies during the course of the assessment centre. These were analytical thinking, creative and innovative thinking, decision-making and judgment, communication, influence, planning and organising, interpersonal sensitivity, teamwork, achievement drive, customer focus and personal values (see Appendix G).

This assessment centre also utilised three exercises that were similar in nature to those used in the assessment centre for the Management training scheme. Again these exercises cannot be explained in detail but they were:

#### **1. Case study:**

This exercise was designed to assess the competencies of analytical thinking, creative and innovative thinking, decision-making and judgment, communication, influencing and planning and organising. Candidates were given a variety of information and were asked to make a number of decisions based on this data. They were then asked to present this data to an assessor. The marking of this exercise involved two assessors one of whom was purely involved in asking

questions about the candidate's presentation while the other rated the candidate.

**2. Criterion based interview:**

This semi-structured interview was based around the competencies of achievement drive, teamwork, customer focus, personal values and planning and organising. The marking of the interview involved two assessors one of whom acted as the interviewer and the other of whom rated the candidate.

**3. Group discussion exercise:**

This exercise was designed to assess communication, interpersonal sensitivity, teamwork, influencing and decision-making and judgment. The candidates were asked to discuss an issue as a group. A single assessor marked each candidate.

Candidates at the assessment centre for the Actuarial training scheme also completed the Advanced Managerial Test for verbal analysis, which was used as a guideline during the consensus discussion.

### **11.3.3 Rating the exercises**

Each candidate's performance on an exercise was rated using a three-stage process. During the exercise, an assessor observed the candidate and recorded their observations in detail. Following the exercise the assessor studied these observations and constructed a list of positive and negative indicators of each competency, based on the candidate's performance in the exercise. Using these indicators, the candidate was then ascribed a rating for each competency. These ratings were on a five-point scale with five indicating a high level of a competency and one indicating a low level of that competency.



Each assessor was responsible for rating each candidate on a particular exercise. Assessors were rotated between exercises so that a different assessor rated each candidate on each exercise. As a result of this design, it was possible to compare assessors by comparing the ratings across exercises.

Following the completion of each exercise scores for each exercise were recorded on a final evaluation matrix (see appendix H). These scores were then used as the basis for the discussion of whether or not to offer a candidate a place on the appropriate training scheme.

#### **11.3.4 Assessor's wash-up**

Following the completion of the exercises and the final evaluation matrix the candidates were discussed in turn, in order to decide whether they had performed to the standard required for acceptance onto a training scheme. The final evaluation matrix for each candidate was displayed on an overhead projector and any differences between ratings for the same competency were discussed. The purpose of the wash-up was to reach a consensus as to whether or not to accept each candidate. All of the assessors who had participated in the assessment centre were present at the consensus discussion. The discussion continued until the assessors agreed on whether the candidate should be offered a place on a training scheme or declined.

#### **11.3.5 Assessor training**

Each assessor completed one full day of training prior to the assessment centre. This training included discussion of the purpose of the assessment centre; competencies, exercises and assessor wash-up as well as practice in rating candidates.

## **11.4 VARIABLES**

### **11.4.1 Predictor variables**

Three sets of predictor variables were employed in the present study. These were the individual assessor ratings, the sex of each assessor and the femininity score for each assessor.

*Sex:* The biological sex of each assessor was recorded.

*Femininity:* The level of femininity of each assessor was evaluated using two of the measures employed in study one. These were the F scale of the Personal Attributes Questionnaire and the Femininity scale of the Bem Sex Role Inventory. These two scales were selected because of their similarity in terms of construction and format

*Individual ratings:* The average score given by each assessor in terms of the average score on each exercise across rated dimensions was recorded for each candidate.

### **11.4.2 Criterion variable**

The criterion (dependent) variable employed in the current study was the final decision (that is whether an individual was hired or rejected) for each candidate.

### **11.4.3 Completion of questionnaires**

Each assessor was asked to complete two personality questionnaires. These were the Personal Attributes Questionnaire and the Bem Sex Role Inventory as used in the first study of the present research. Due to practical considerations it was not possible to administer these questionnaires on a face-to-face basis. Therefore, the questionnaires were distributed by post. A standardised introduction was included with the questionnaires (Appendix I).

#### **11.4.4 Data Analysis**

**A logistic regression analysis was performed in order to assess the contribution of each assessor's rating to the final decision and to evaluate the impact of assessor sex and femininity upon this contribution.**

12.0 RESULTS

12.1 SAMPLE CHARACTERISTICS

A total of 148 candidates who participated in the assessment centres for positions on the Management and Actuarial training schemes within the client organisation were used in the present study. Of these, 91 (61.5%) were male and 57 (38.5%) were female. This data set included very few missing values. Those cases with missing values were excluded from the analysis.

Table 8: Organisational grades of assessors marking the three exercises.

Organisational Grade	Assessor marking CB Interview		Assessor marking Group Exercise		Assessor marking Case Study	
	Number	%	Number	%	Number	%
5	8	5.6	9	6.3	2	1.4
6	0	0.0	1	0.7	1	0.7
7	9	6.3	12	8.3	9	6.3
8	1	0.7	0	0.0	0	0.0
9	59	41.0	46	31.9	52	36.1
10	40	27.8	39	27.1	48	33.3
11	19	13.2	25	17.4	19	13.2
12	2	1.4	4	2.8	6	4.2
13	1	0.7	4	2.8	4	2.8
TOTAL	139	100.0	140	100.0	141	100.0

It can be seen from table 8 that the majority of the assessors who participated in the present study (76 – 82%) were between organisational grades 9 and 11.

## **12.2 TREATMENT OF DATA**

The criterion variable (final decision) was coded as 1 for those candidates who were hired and 0 for those who were rejected. As one assessor marked each candidate on a particular exercise it was possible to use a candidate's score on an exercise to represent a particular assessor. An average score across competencies for each candidate's performance on each assessment centre exercise was used to represent the assessor's ratings of each candidate (as a different assessor rated each exercise).

The gender of the assessor scoring each exercise was coded as 0 for male and 1 for female, in order to distinguish between the two sets of scores. An assessor's scores from two femininity scales (BSRI femininity and PAQ F) were used to represent the femininity of that assessor.

## **12.3 OVERVIEW OF ANALYSIS**

The analysis used in the second study was designed to assess the impact of assessor sex and femininity upon the amount of influence that an assessor had over the consensus discussion in an assessment centre. A logistic regression analysis was used in order to assess the two models that were constructed in order to predict the final decision (hire or reject) in an assessment centre.

The first logistic regression model attempted to predict final assessment centre decision using the average assessor ratings, sex of the assessors, and the interaction between these two. The predictors were entered in three separate blocks. The average assessor ratings were entered as the first block; sex of the assessors at the second block and the interaction between the average assessor ratings and the sex of the assessors was entered at the third block.

The second model was designed to assess the impact of femininity upon the final assessment centre decision. Two convergent methods were used to measure femininity in order to increase the validity of the findings. As two measures of femininity were used, two logistic regression analyses were performed. These two analyses consisted of three blocks of predictors. Both analyses utilised the average assessor ratings as predictors in the first block. The first of the two analyses the assessors' scores used the BSRI Femininity scale as predictors in the second block and then the interaction between these scores and the average assessor ratings in the third block. The second of the two analyses used the assessors' scores from the PAQ F scale as predictors in the second block and the interaction between these and the average assessor ratings in the third block. These two analyses were then compared.

## **12.4 INFLUENCE INDICATORS**

The areas of possible influence relevant to the present study, within the final decision process, were, in the first model, the average assessor ratings for each candidate, the sex of the assessors and the interaction between the average assessor ratings and sex, and, in the second model, the average assessor ratings for each candidate, the femininity of the assessors (as measured by either the F scale of the PAQ or the Femininity scale of the BSRI) and the interaction between the average assessor ratings and femininity. The interaction terms were calculated as the product of each average assessor rating and the sex of the assessor performing that rating (coded as 1 or 0) or the femininity score for that assessor as appropriate. The interaction terms are essential to this analysis as they provide an indication of the impact of sex or femininity upon the amount of influence that an assessor is allowed over the final assessment centre decision.

**12.4.1 CONTRIBUTION OF ASSESSOR SEX TO THE FINAL ASSESSMENT CENTRE DECISION.**

The first logistic regression model was designed to examine the impact of the average assessor ratings, sex of the assessors and the interaction between the average assessor ratings and the sex of the assessors upon the final assessment centre decision. These three sets of variables were entered as three separate blocks of a logistic regression analysis.

The average assessor ratings for each candidate's performance on the Criterion Based Interview, Group Exercise and Case Study were utilised as predictors in the first step of a logistic regression analysis. These three predictors were entered as the first block of a logistic regression analysis.

Table 9: Logistic regression model of assessment centre final decision, using average assessor ratings as predictors (n = 144).

Variable	B	Wald	df	Sig	Partial Correlation(R <sup>2</sup> )
Criterion Based Interview	2.51	13.29	1	0.00	0.06
Group Exercise	1.68	9.99	1	0.00	0.05
Case Study	2.71	20.76	1	0.00	0.11
Constant	-21.93	29.32	1	0.00	

On the basis of the Wald statistic, all three exercise ratings significantly contributed to the final assessment centre decision ( $p<0.01$ ).

This model produced a chi square value of 78.83 (degrees of freedom = 3; significance = 0.00). This demonstrates that the inclusion of the average assessor ratings into the model as predictors, significantly improved the model over one relying on chance alone (i.e. without these predictors).

Table 10: Classification matrix for predicting group membership (accept or reject) from average assessor ratings.

Observed	Predicted	
	Reject	Hire
Reject	91 (90.10% correct)	10
Hire	11	32 (74.42% correct)
	Overall = 85.42% correct	

Overall, 85.42% of cases were successfully classified on the basis of average assessor scores. The logistic regression analysis showed a high degree of success in identifying those candidates who were rejected after the assessment centre, but showed slightly less ability at identifying those candidates who were accepted onto the Management or Actuarial training schemes within the client organisation.

The fact that the percentage of cases that were correctly classified based upon average exercise ratings is not 100% however, suggested that factors other than



the assessment centre exercises were having an influence upon the assessment centre decision.

Sex of the assessors was utilised as the predictor in the second step of the logistic regression analysis to establish the impact of assessor sex on the final assessment centre decision. The sex of the assessors who marked the Criterion-Based Interview, Group Exercise and Case Study were forced into the analysis as a second block after the average exercise ratings.

**Table 11: Logistic regression model of assessment centre final decision, using average assessor ratings and assessor sex as predictors (n = 144).**

Variable	B	Wald	df	Sig	Partial Correlation (R <sup>2</sup> )
Criterion Based Interview	2.63	13.95	1	0.00	0.12
Group Exercise	1.71	9.84	1	0.00	0.08
Case Study	2.78	20.37	1	0.00	0.19
Sex of assessor marking CBI	-0.78	1.82	1	0.18	0.00
Sex of assessor marking group exercise	0.44	0.59	1	0.44	0.00
Sex of assessor marking case study	0.22	0.15	1	0.70	0.00
Constant	-22.56	30.10	1	0.00	

On the basis of the Wald statistic only the three average exercise ratings contributed significantly to the final assessment centre decision (p<0.01).

The model produces a chi-squared value of 81.63 demonstrating that this model was better than one that relied on chance alone (p<0.01). The change in the model compared to step one of the logistic regression analysis produced a chi-squared value of 2.80. This demonstrates that the inclusion of assessor sex as

a predictor did not significantly improve the model over that which contained only the average exercise ratings ( $p>0.05$ ).

Table 12: Classification matrix for predicting group membership (accept or reject) from average assessor ratings and assessor sex.

Observed	Predicted	
	Reject	Hire
Reject	91 (90.10% correct)	10
Hire	12	31 (72.09% correct)
	Overall = 84.72% correct	

Table 12 shows that 84.72% of cases were successfully classified on the basis of average assessor scores and assessor sex. The percentage of cases correctly classified is therefore lower than when average assessor scores alone were used. This difference is only marginal however and is not significant

The interaction between average exercise rating and assessor sex was calculated as the product of the average assessor rating and the sex of the assessor (coded as 0 or 1) rating that exercise. These interaction terms were utilised as predictors in the third step of the logistic regression analysis.

**Table 13: Logistic regression model of assessment centre final decision, using average assessor ratings, assessor sex and the interaction between average assessor ratings and assessor sex as predictors (n = 144).**

Variable	B	Wald	df	Sig	Partial Correlation (R <sup>2</sup> )
Criterion Based Interview	3.82	13.66	1	0.00	0.12
Group Exercise	1.79	6.26	1	0.01	0.05
Case Study	2.12	8.92	1	0.00	0.07
Sex of CBI assessor	0.67	0.00	1	0.99	0.00
Sex of group exercise assessor	-3.35	0.56	1	0.46	0.00
Sex of Case study assessor	-0.42	8.52	1	0.00	0.07
CBI X Sex	-0.42	0.67	1	0.80	0.00
Group Exercise X Sex	1.23	0.76	1	0.38	0.00
Case Study X Sex	7.02	8.91	1	0.00	0.07
Constant	-24.75	21.23	1	0.00	

It can be seen from table 13 that the final assessment centre decision can now be predicted using the sex of the assessor marking the case study and the interaction between the sex of this assessor and the average case study ratings in addition to the three average exercise ratings. The inclusion of the sex of the

assessor rating the case study into the model suggests that a candidate whose case study was rated by a female assessor was less likely to be hired than if a male assessor had rated their case study. The inclusion of the interaction between the average assessor rating on the case study and the sex of the assessor rating that case study indicates that a candidate is only likely to be hired if a woman has marked them highly on the case study.

This third model (using three sets of predictors) produced a chi square value of 17.84 over the previous model. This was significant ( $p < 0.01$ ). Therefore, the inclusion of the interaction between assessor sex and the average assessor ratings as predictor variables, in addition to the average assessor ratings and assessor sex did significantly improve the model over one with only average assessor ratings as predictors. This model produced an overall chi-squared value of 99.46. This was also significant ( $p > 0.01$ ).

Table 14: Classification matrix for predicting group membership (accept or reject) from average assessor ratings, assessor sex and the interaction between average assessor ratings and assessor sex.

Observed	Predicted	
	Reject	Hire
Reject	91 (90.10% correct)	10
Hire	10	33 (76.74% correct)
	Overall = 86.11% correct	

The inclusion of the interaction between assessor sex and average exercise ratings into the model also slightly improved the classification of candidates as

being hired or rejected (the percentage of candidates successfully classified increased to 86.11%). This improvement was not significant.

**12.4.2 CONTRIBUTION OF ASSESSOR FEMININITY TO THE FINAL ASSESSMENT CENTRE DECISION.**

Two measures were used in order to assess femininity in the present study. These were the femininity scale of the BSRI and the F scale of the PAQ. Given that neither measure is completely reliable two logistic regression analyses were calculated (one analysis using each measure) in order to optimise the validity of the results. Given that completed questionnaires were not received from all of the assessors these analyses are based upon a smaller sample size of 110.

The first step of the two logistic regression analyses utilised the average assessor ratings for the three exercises as predictors.

Table 15: Logistic regression model of assessment centre final decision, using average assessor ratings as predictors (n = 110).

Variable	B	Wald	df	Sig	Partial Correlation(R <sup>2</sup> )
Criterion Based Interview	2.71	11.88	1	0.00	0.07
Group Exercise	1.62	6.96	1	0.01	0.04
Case Study	2.29	13.48	1	0.00	0.09
Constant	-21.15	21.87	1	0.00	

The analysis shown in table 15 produced a chi-squared value of 55.85. This was significant, therefore demonstrating that average exercise ratings could successfully be used to predict final assessment centre rating (p<0.01).

Table (16) Classification matrix for predicting group membership (hire or reject) from average assessor ratings.

Observed	Predicted	
	Reject	Hire
Reject	68 (89.47% correct)	8
Hire	9	25 (73.53% correct)
	Overall = 88.18% correct	

Overall, 88.18% of cases were successfully classified on the basis of average assessor scores. This demonstrates that the model is better at predicting group membership than one relying on chance alone.

The second step of the logistic regression analysis was performed using the assessors' scores on the femininity scale of the BSRI as predictors in order to establish the impact of assessor femininity on the final assessment centre decision. These femininity scores were forced into the analysis as a second block.



**Table 17: Logistic regression model of assessment centre final decision, using average assessor ratings and BSRI femininity scores as predictors (n = 110).**

Variable	B	Wald	df	Sig	Partial Correlation (R <sup>2</sup> )
Criterion Based Interview	2.54	10.75	1	0.00	0.11
Group Exercise	1.81	7.47	1	0.01	0.07
Case Study	2.31	13.26	1	0.00	0.14
BSRI Femininity score of CBI assessor	0.23	0.69	1	0.79	0.00
BSRI femininity score of Group Exercise assessor	1.37	3.56	1	0.06	0.02
BSRI femininity score of Case Study assessor	-0.78	1.09	1	0.30	0.00
Constant	-24.95	11.28	1	0.00	

This analysis failed to find any significant effect of assessor femininity upon the assessment centre final decision (p>0.05).

This model (using both sets of predictors) produced a chi square value of 4.63 as the improvement over the original model (using only the average assessor ratings as predictors). This was not significant (p > 0.05). Therefore, the inclusion of the femininity of the assessors into the model as a predictor variable did not significantly improve the model over one with only average assessor ratings as predictors.

Table 18: Classification matrix for predicting group membership (accept or reject) from average assessor ratings and assessor scores on the BSRI Femininity scale (n = 110).

Observed	Predicted	
	Reject	Hire
Reject	71 (93.42% correct)	5
Hire	8	26 (76.47% correct)
	Overall = 88.18% correct	

The inclusion of assessor femininity into the model also did not improve the classification of candidates as being hired or rejected (the percentage of candidates successfully classified remained at 88.18).

The interaction between average assessor ratings and femininity (in terms of scores on the BSRI Femininity scale) was calculated as the product of the average assessor rating and the femininity score of the assessor rating that exercise. These interaction terms were entered as predictors in the third step of the logistic regression analysis.

Table 19: Logistic regression model of assessment centre final decision using average assessor ratings, assessor scores on the BSRI Femininity scale and the interaction between the two (n = 110).

Variable	B	Wald	df	Sig	Partial Correlation (R <sup>2</sup> )
Criterion Based Interview	-10.14	0.79	1	0.37	0.00
Group Exercise	4.78	0.39	1	0.53	0.00
Case Study	-0.18	0.00	1	0.98	0.00
BSRI Femininity score of CBI assessor	-9.03	1.15	1	0.28	0.00
BSRI femininity score of Group Exercise assessor	3.25	0.36	1	0.55	0.00
BSRI femininity score of Case Study assessor	-2.54	0.36	1	0.55	0.00
CBI Interaction	2.78	1.22	1	0.27	0.00
Group exercise interaction score	-0.65	0.15	1	0.70	0.00
CS interaction score	0.57	0.17	1	0.68	0.00
Constant	16.30	0.11	1	0.74	0.00

It can be seen from table 19 that the final assessment centre decision cannot be predicted using the interaction between average assessor ratings and assessor femininity.

The analysis produced a chi-squared value of 1.82 as the improvement over the previous model. This was not significant (p>0.05).

Table 20: Classification matrix for predicting group membership (hire or reject) from average assessor ratings, assessor scores on the BSRI Femininity scale and the interaction between the two (n = 110).

Observed	Predicted	
	Reject	Hire
Reject	68 (89.47% correct)	8
Hire	9	25 (73.53% correct)
	Overall = 84.55% correct	

It can be seen that the inclusion of the interaction between average assessor ratings and assessor femininity into the model as a predictor failed to improve the percentage of candidates successfully classified as being hired or rejected. In fact the percentage of candidates correctly classified was slightly lower than those successfully classified using the previous model, although this was not significant.

An examination of the three steps of the logistic regression analysis suggested that the model demonstrated in step one (using only the average assessor ratings as predictors) was the most effective at predicting final assessment centre decision. In can be seen that the average assessor ratings that were significant at step one of the analysis were non-significant at step three. This suggests that the inclusion of the interaction between femininity and average assessor ratings added noise to the model thus confusing the results.

In order to assess the validity of the above findings the logistic regression analysis was repeated using scores from the PAQ F scale as a measure of

femininity. The average assessor ratings were entered as block one of the analysis in the same way to the previous model. As this stage of the analysis used the same sample and the same predictors the results are identical to those shown in table 15. The femininity scores of the assessors in terms of their scores on the PAQ F scale were entered into the logistic regression model as a second block.

Table 21: Logistic regression model of final assessment centre decision using average assessor scores and assessor scores on the PAQ F scale as predictors (n = 110).

Variable	B	Wald	Df	Sig	Partial Correlation (R <sup>2</sup> )
Criterion Based Interview	2.66	10.77	1	0.00	0.11
Group Exercise	1.84	7.78	1	0.01	0.07
Case Study	2.31	13.13	1	0.00	0.14
PAQ F score of CBI assessor	0.68	0.45	1	0.50	0.00
PAQ F score of Group Exercise assessor	0.11	1.50	1	0.27	0.02
PAQ F score of Case Study assessor	-0.05	0.38	1	0.54	0.00
Constant	-24.55	16.75	1	0.00	

It can be seen from table 21 that the analysis did not find a significant effect of assessor femininity (in terms of their score on the PAQ F scale) on the assessment centre final decision.

This model produced a chi-squared value of 2.21 as the improvement over the previous model. This was not significant ( $p>0.05$ ). Therefore the inclusion of femininity into the model as a predictor did not improve the model over one with only average assessor ratings as predictors.

Table 22: Classification matrix for predicting group membership (accept or reject) from average assessor ratings and assessor scored on the PAQ F scale (n = 110).

Observed	Predicted	
	Reject	Hire
Reject	69 (90.79% correct)	7
Hire	12	22 (64.71% correct)
Overall = 82.73% correct		

Table 22 shows that overall this model classified 82.73% of cases correctly. This is lower than the percentage that was successfully classified using only the average assessor ratings as predictors.

The third step of the logistic regression analysis was repeated using the interaction of average assessor ratings and assessor femininity (as a score on the PAQ F scale) as a predictor. This interaction was calculated as the product of the average assessor ratings and the assessors' scores on the PAQ F scale. These interaction scores were forced into the analysis as the third block of the model.

Table 23: Logistic regression model using average assessor ratings, assessor scores on the F scale of the PAQ and the interaction between the two as predictors (n = 110)

Variable	B	Wald	df	Sig	Partial Correlation (R <sup>2</sup> )
Criterion Based Interview	4.10	0.54	1	0.46	0.00
Group Exercise	0.15	0.00	1	0.97	0.00
Case Study	-0.53	0.02	1	0.89	0.00
PAQ F score of CBI assessor	0.27	0.10	1	0.76	0.00
PAQ F score of Group Exercise assessor	-0.14	0.05	1	0.82	0.00
PAQ F score of Case Study assessor	-0.44	0.78	1	0.38	0.00
CBI Interaction	-0.06	0.06	1	0.80	0.00
Group exercise interaction score	0.78	0.16	1	0.69	0.00
CS interaction score	-0.13	0.62	1	0.43	0.00
Constant	-15.01	0.46	1	0.50	0.00

Table 23 demonstrates that final assessment centre decision could not be predicted using the interaction between average assessor ratings and assessor femininity (as scores on the PAQ F scale). This model produced a chi-squared value of 0.76 as the improvement over previous model. This was not significant (p>0.05).

Table 24: Classification matrix for predicting group membership from average assessor ratings, assessor scores on the PAQ F scale and the interaction between these two (n = 110).

Observed	Predicted	
	Reject	Hire
Reject	70 (92.11% correct)	6
Hire	11	23 (67.65% correct)
	Overall = 84.55% correct	

Overall this model classified 84.55% of cases correctly. This is lower than those correctly classified using only the average assessor ratings as predictors (see table 16).

Given that the second and third block of this model failed to improve the model over the model that included only the average exercise ratings, it can be suggested that block one of the logistic regression model is the most appropriate for predicting the assessment centre final decision.

If the results of the two logistic regression analyses are compared it can be seen that very similar results are obtained regardless of whether the BSRI Femininity scale or the PAQ F scale is used as a measure of femininity. The use of two convergent methods to produce similar results in this manner adds validity to the findings that femininity or the interaction between femininity and average assessor ratings do not have an impact upon the final assessment centre decision.



It should be noted that the addition of the interaction between average assessor ratings and assessor femininity in the third block of both logistic regression analyses (those including the BSRI femininity scores and the PAQ F scores) produced some unexpected results. The inclusion of the interaction terms into these analyses appears to have severely influenced the other parameters of the results, so that the effect of the average assessor ratings upon the final assessment centre decision was no longer significant ( $p>0.05$ ). This was true regardless of the femininity measure being used.

A closer examination of the relationships between the three sets of variables utilised in this logistic regression model (average assessor ratings, femininity and the interaction term) demonstrated high correlations between the average assessor ratings and the interaction between these ratings and assessor femininity. The correlations between average assessor ratings and the interaction between these ratings and the BSRI Femininity scale were 0.92, 0.90 and 0.93 for the criterion-based interview, group exercise and case study respectively. Correlations between the average assessor ratings and the PAQ F scale were 0.77, 0.78 and 0.92 for the criterion-based interview, group exercise and case study respectively. It is therefore likely that because these variables were sharing a large amount of variance that the results of the logistic regression analyses became distorted.

Further investigation into the reasons behind these high correlations revealed that the variance between the femininity scores was very small in comparison to the average assessor ratings. For example, BSRI femininity scores of the assessors rating the criterion based interview ranged from 3.95 to 5.3 (variance = 0.14) as opposed to a range of 1.33 to 4.40 (variance = 0.30) within the average assessor ratings. This lack of variance in the scores could be a characteristic of the measures used or of the sample. Given that both the BSRI

and PAQ are widely used in research as a whole it would seem likely that the lack of variance was due to some characteristic of the particular sample used.

The lack of variance within the femininity scores compared to the average assessor ratings means that the average assessor ratings were contributing much more to the interaction term than are the femininity scores. This in turn led to a very high correlation between the interaction term and the average assessor ratings. In effect the average assessor ratings were being multiplied by a constant term, which was the BSRI Femininity or PAQ F score.

## **13.0 DISCUSSION AND CONCLUSIONS TO STUDY TWO**

The second study was designed to investigate the impact of assessor sex and femininity upon the amount of influence that each assessor was allowed over the consensus discussion and final decision in an assessment centre. The first study demonstrated that assessor sex did not have an effect upon the amount of influence that an assessor had over the decision making process but that assessors who showed higher femininity (as measured by the BSRI Femininity scale and the PAQ F scale) had less influence. The purpose of the second study was to evaluate the external validity of the laboratory-based findings of the first study within a field setting.

It was hypothesised that firstly, there would be no effect of sex on the amount of influence that an assessor has over the consensus discussion, and secondly, that assessors who show high femininity would have less influence than those who show lower femininity.

### **13.1 SUMMARY OF FINDINGS**

A series of logistic regression analyses were used to assess the impact of average assessor ratings, sex and femininity upon the final assessment centre decision and, as such, on the amount of influence that each assessor was allowed over this decision. A three-stage logistic regression analysis was conducted to assess the contribution of average assessor ratings, assessor sex and the interaction between average assessor ratings and assessor sex to the final assessment centre decision. Two further three-stage logistic regression analyses were carried out to assess the impact of average assessor ratings, assessor femininity and the interaction between average assessor ratings and assessor femininity on the final decision. As it was not possible to measure femininity in a completely reliable way, two convergent measures were used in order to increase the validity of this technique.

## **Influence of average assessor ratings**

All three logistic regression models included average assessor ratings for the three exercises of Criterion-Based Interview, Group Exercise and Case Study in the first block. In all three cases the analysis demonstrated that the use of average assessor ratings as predictors significantly improved the model of the final assessment centre decision over one that relies on chance alone ( $p > 0.01$ ). These findings suggest that the assessor ratings were being used relatively well in the decision making process. However, given that the exercises only explained a relatively small amount of the variance in the final assessment centre decision (see partial correlations in tables 9 and 15) it can be seen that this assessment centre could still be improved. This may suggest that the final assessment centre decision was being influenced by factors other than just the assessor ratings.

The fact that the exercise scores only explain a small amount of the variance in the final assessment centre decision may lead to some concern regarding the predictive validity of the assessment centre used in study two. The assessment centre may appear to have content validity in terms of the case study being a realistic representation of the actual job but the criterion validity of this centre has not been investigated. It is important that some form of criterion validation should be carried out if the centre is to be confident in selecting the most suitable individuals for the two graduate training schemes. If the assessment centre is found to have low criterion validity then it is essential that the client organisation take steps to improve this. These measures may include a thorough job analysis in order to properly identify the behavioural competencies required, the introduction of a more structured rating format, further assessor training in terms of overcoming rater error or the introduction of a mechanical decision making technique. While the criterion validity of the assessment centre is not the subject of this research it is worth noting that a validation strategy of this type is needed.

## **Influence of assessor sex**

The first of the three logistic regression analyses consisted of three stages. The first stage included the three average assessor ratings as has already been discussed. The sex of the assessors who rated the criterion-based interview, group exercise and case study were entered into the analysis as the second stage. The inclusion of assessor sex into the model failed to improve the model over that with the average assessor ratings alone. Finally the interaction between the average assessor ratings and assessor sex were entered as the third block of the analysis. The results showed that the model used in stage three of the logistic regression analysis (that is the model containing the average assessor ratings, assessor sex and the interaction between the two) best predicted the final assessment centre decision. Five variables significantly contributed to the final assessment centre decision. These were the three average assessor ratings, the sex of the assessor marking the case study and the interaction between the average assessor rating and the sex of the assessor who marked the case study. There was a significant relationship between the sex of the assessor who rated the case study and the average assessor ratings for this exercise. This finding suggested that a candidate was less likely to be offered a position on the management or actuarial training scheme if a female assessor rated the case study. The effect of the interaction between the average assessor rating and the sex of the assessor for the case study upon the final assessment centre decision indicated that a female assessor's rating was only given sufficient weight for a candidate to be hired if this rating was relatively high. This finding indirectly suggested that assessor sex did have an impact on an assessor's influence in that a female assessor had less influence over the consensus discussion. This finding therefore did not support the experimental hypothesis that there would be no effect of assessor sex upon the amount of influence that an assessor had over the consensus discussion in an assessment centre.

The finding that sex had an impact upon the amount of influence that an assessor is allowed over the consensus discussion in an assessment centre did however support the bulk of past literature. The findings of the second

study supported the existence of sex as a status characteristic (Webster & Foschi, 1988) in that those individuals with the less desirable state of the characteristic (female assessors) had less influence than those with the more desirable state of the characteristic (male assessors). The findings from the second study also supported the literature on sex differences in leader emergence (Megargee, 1969; Carbonell, 1984) in that female assessors were allowed less influence over the group task

### **Influence of assessor femininity:**

The second and third logistic regression analyses were designed to investigate the impact of femininity on an assessor's influence over the consensus discussion in an assessment centre. These analyses also adopted a three-step approach, including the average assessor ratings as the first block, the femininity of the assessors' rating the exercises as the second block and the interaction between average assessor ratings and assessor femininity as the third block. Given that femininity is a construct that cannot be measured with perfect reliability, two convergent methods of measuring femininity were used. Therefore two logistic regression analyses were performed, each using a different measure of femininity in order to increase the validity of the experimental findings. The two measures used were the BSRI Femininity scale and the PAQ F scale. Both logistic regression analyses produced similar findings, regardless of the femininity measure used, therefore demonstrating the convergent validity of the findings.

The most effective model for predicting the final assessment centre decision in these analyses was the model utilised at the first stage of the analyses, that including only the average assessor ratings. The inclusion of assessor femininity and the interaction between assessor femininity and the average assessor ratings failed to significantly improve the model over one which contained the average assessor ratings alone. This demonstrated that the femininity of the assessor rating the exercises (regardless of how it was measured) had no impact upon the amount of influence that an assessor had over the formulation of the final assessment centre decision. In fact the

addition of the interaction between assessor femininity and average assessor ratings to the model merely added a considerable amount of 'noise' to the model in that the relationships between the average assessor ratings and the final assessment centre decision became non-significant when this term was added. This may have been due to the high correlations between the interaction term and the average assessor ratings. These findings do not support the second experimental hypothesis that assessors who show high femininity will have less influence over the consensus discussion and therefore are in contrast to the findings from the first study.

In conclusion therefore, the results of the second study demonstrated an effect of sex on influence in that female assessors have less influence over the consensus discussion, but did not show any effect of femininity over influence. This did not support the findings of the first study. The existence of sex differences in the amount of influence that the assessors were allowed over the final decision did however support the literature on sex as a status characteristic and sex differences in leader emergence.

## **13.2 EXTERNAL VALIDITY**

The purpose of the second study was to assess the external validity of the findings of the first study. It is important that the validity of any research findings are considered before those findings are accepted or generalised to other scenarios. McCall (op cit) has noted that little attention is paid to the collection of adequate and proper data, as opposed to the care taken over the proper analysis of experimental data. It is therefore important to ensure that the methods used to collect the data in this, or any research, lend sufficient validity to the findings.

The methodology of the first study demonstrated high internal validity in that a laboratory-based simulation was used to optimise experimental control. However, if the findings of the first study were to be generalised to assessment centres as a whole then it was essential that they should also

have external validity (Campbell and Stanley, op cit). Given that laboratory experiments, by design, may lack external validity (Robson, op cit) and the first study used volunteers who may display certain characteristics such as higher occupational status, higher need for approval and higher intelligence (Crano & Brewer, op cit; Rosenthal & Rosnow, op cit), the findings of the first study may have lacked external validity. While it can be argued that the simulation used in study one closely represented a real assessment centre, the motivation of the assessors may still give some cause for concern. It was therefore necessary to provide a more direct test of the external validity of the experimental findings. The second study therefore consisted of a field study using a real life assessment centre on order to determine whether the findings of the first study had external validity and could therefore be generalised to other assessment centres.

The second study was designed as an attempt to replicate two of the findings of the first study, namely that assessor sex would have no impact of the amount of influence that an assessor was allowed over the consensus discussion, and that those assessors who showed high femininity would have less influence over this discussion. The replication of these findings would have demonstrated that the study had external as well as internal validity. The findings of the second study that the biological sex of an assessor had an impact on influence with regard to the case study exercise and that there was no relationship between assessor femininity (in terms of stereotypically feminine characteristics) and influence over the consensus discussion were in direct opposition to the findings of the first study. This therefore suggests that the findings of the first study lacked external validity.

As has been noted by Robson (op cit), internal and external validity tend to be inversely related so that a methodology with high internal validity will have low external validity and vice versa. Given this assertion, and the lack of control that was permitted over the environment in the field study, it can be presumed that, while the design of study two may have promoted external validity, the degree of internal validity in this study was relatively low. It should be remembered therefore that the externally valid findings of study two, in which



it was found that sex does have an effect on assessor influence over the consensus discussion and that femininity does not, may lack internal validity.

### **13.3 METHODOLOGICAL CONSIDERATIONS**

It is necessary to consider the size of the sample used in the second study. The analyses used in study two used sample sizes of 144 (or 110 when cases were excluded due to missing questionnaire responses) and nine predictors, so the ratio of participants to predictors is sixteen to one or twelve to one respectively. Cohen and Cohen (1983) and Tabachnick and Fidell (1983) have suggested that this ratio should be twenty to one if the results of a multivariate statistical analysis such as that used in study two is to be reliable in terms of the stability of the B coefficients. It must be realised therefore that the results of the analysis cannot be regarded as totally reliable. This study should be repeated with a larger sample in order to establish the reliability of these findings.

It has already been noted that the introduction of the interaction between assessor femininity and average assessor ratings into the logistic regression model merely added noise to the model and distorted the results so that the impact of average assessor ratings upon the final assessment centre decision appeared non-significant. It has also been established that this was probably due to the high correlations between the average assessor ratings and the interaction term and that these correlations were due to the lack of variance within the femininity scores (regardless of the measure). For example, the variance in the femininity scores of the assessors who marked the criterion-based interview was 0.13 as opposed to the variance noted in the norms for the BSRI of 0.35. As this variance was so small, the average assessor ratings were effectively being multiplied by a constant term when creating the interaction term hence the very high correlations between the average exercise ratings and the interaction term. This was also true with regard to the assessors' scores on the PAQ F scale. This existence of these difficulties made the results of this analysis somewhat difficult to interpret.

There are two possible explanations of the lack of variance within the femininity scores. Firstly, this may have been due to the scales that were

used to measure femininity. Given that the BSRI and PAQ are both widely used measures and that this observation is true of both scales, this is relatively unlikely. Secondly, the lack of variance within the femininity scores may have been due to some characteristic of the sample used. It may be that the client organisation only used assessors with particular characteristics, so that all of the assessors in the sample tended to be of a similar level in terms of femininity. It is essential that the findings of this study in terms of femininity be evaluated via a replication of the study using a sample with a wider spread of femininity scores.

#### **13.4 SUMMARY**

The second study was designed to assess the external validity of the results of the simulation used in the first study. It was therefore predicted that the findings that sex had no effect on assessor influence and that assessors with high femininity would have less influence over the consensus discussion would be replicated in a field study using a real assessment centre. The field study actually showed that, with regard to the case study, female assessors had less influence and that femininity had no effect on an assessor's influence over the consensus discussion, thus contradicting the results of the first study. This suggests that the findings of the first study may have lacked external validity. It should be noted however that the findings of the second study were likely to have relatively low internal validity. It is difficult to say whether either of these two perspectives is correct. Further examination of these findings is therefore necessary.

There are a number of methodological concerns that should be considered. Firstly, the ratio of participants to predictors was below recommended levels. Secondly, the lack of variance in femininity scores introduced 'noise' into the analysis in that the lack of variance within the femininity scores meant that the average exercise ratings and the interaction term were virtually the same.

**An investigation of these findings in the context of the literature on group dynamics in general and with attention to issues regarding experimental design is required if any conclusions regarding the influence structure of an assessor team are to be made.**

## **14.0 DISCUSSION OF RESEARCH AND OVERALL CONCLUSIONS**

In order to examine the findings of the two studies as a whole and to place these findings within the context of past research on group dynamics, it is first necessary to re-visit the past literature on assessment centres and group decision-making and to examine the overall purpose of this research. It will then be possible to assess the results of the current research with regard to this past literature and guidelines for best practise in terms of experimental design, in order to provide recommendations for future directions in terms of assessment centre decision-making.

### **14.1 SUMMARY OF RATIONALE**

Given that the assessment centre is becoming increasingly popular (Anderson, Payne, Ferguson and Smith, 1994; Adler, 1987), it is essential that it should continue to develop as a means of selection and that its validity should continue to improve. The final assessment centre decision of whether to hire or reject a candidate is commonly made via a consensus discussion, despite considerable evidence that this clinical process is vastly inferior to the mechanical combination of information (Sawyer, 1966; Feltham, 1988). It is therefore vital that the reasons behind this inferiority should be investigated.

The consensus discussion process in an assessment centre is a group decision-making scenario and therefore may be subject to the processes of group dynamics. It may be that individual differences between the assessors have an impact on the decision-making within the consensus discussion (Schmitt, 1977; Zedeck 1986). Past research has suggested that different members of a group are allowed different amounts of influence over the decision-making process according to how much status they are perceived as having (Strodbeck and Mann, 1956; Torrance, 1956; Webster and Foschi, 1988). This status hierarchy is usually based upon legitimate status such as organisational rank or competence at the group task (Hollander 1960; 1961a; 1961b). However, in task groups where information regarding task

competence is not available, the influence structure of the group will develop based on other factors.

The theory of status characteristics and expectation states proposes that influence hierarchies within groups arise as the result of different expectations of each individual's performance, which may be based upon differences in status characteristics such as sex (Berger, Cohen and Zelditch, 1966; Berger, Rosenholtz and Zelditch, 1980). A person who possess the desirable state of any status characteristic (such as being male) will be expected to perform better at the group task and will be allowed more influence within the group. It was expected in the first study therefore that a male assessor would be allowed more influence over the consensus discussion in an assessment centre. An imbalance of influence of this type may provide an insight into the reasons behind the inferiority of the clinical formulation of the final assessment centre decision.

It has also been suggested in the literature that the personality characteristics of group members may have an impact on the influence hierarchy within a task group in a similar way to that of status characteristics (Driskell, 1982). Dominance, masculinity and femininity have been identified as personality factors which may affect the amount of influence that an individual is allowed over the group task. People who are more dominant or masculine and less feminine are allocated higher performance expectations and are therefore allowed more influence within the group. It was predicted therefore that assessors who demonstrated high dominance or masculinity or low femininity would be allowed more influence over the consensus discussion in an assessment centre and that in turn may affect the nature and validity of the final assessment centre decision.

The influence hierarchy within an assessor team was therefore investigated with regard to the effects of status characteristics such as sex, and personality characteristics such as dominance, masculinity and femininity. If the amount of influence that each assessor is allowed over the consensus discussion is not equal then the final decision may be biased towards the opinion of a

particular assessor and as such may not be totally fair. It was for these reasons that the present research was conducted.

## **14.2 PURPOSE AND DESIGN OF RESEARCH**

The purpose of the present research therefore was to establish the basis of any influence differences that may develop between assessors during the consensus discussion. This research focused on the status characteristic of sex and the personality characteristics of dominance, masculinity and femininity and their impact upon the amount of influence that each assessor was allowed over the consensus discussion in an assessment centre.

This project adopted a two-stage strategy using two alternative designs. The first study was designed to isolate those factors that had been identified as possibly affecting the amount of influence that an assessor was allowed over the consensus discussion (sex, dominance, masculinity and femininity) and to examine the relationships between these factors and influence. In order to achieve this it was essential that a high degree of control be established over the experimental situation. Therefore a simulation of an assessment centre was used in order to promote internal validity (Campbell and Stanley, 1963).

The purpose of the second study was to establish whether the findings of the first study were generalisable to real-life assessment centres as a whole. It was therefore necessary to adopt a research strategy that would promote external validity and generalisability (Campbell and Stanley, 1963). A field study of a real life assessment centre was used in an attempt to verify the results of the first study, with the purpose of adding external validity to those findings.

Overall therefore the purpose of this research was to establish the impact of sex, dominance, masculinity and femininity on influence, using a combination of experimental strategies designed to promote both internal and external validity.

### **14.3 SUMMARY OF RESEARCH FINDINGS**

The first study used a path analysis to establish the relationships between the status characteristics of sex, personal characteristics of dominance, masculinity and femininity and the amount of influence that an assessor was allowed over the consensus discussion in an assessment centre. The only significant relationship found as a result of this analysis was between femininity and influence. Assessor femininity was found to have an effect on influence in that assessors who showed higher femininity were allowed less influence over the consensus discussion. No significant relationship was found between sex and influence. This was somewhat surprising given the considerable amount of evidence in the literature to suggest that men are generally allowed more influence over a group task. This study also did not find a significant relationship between dominance and influence, or masculinity and influence.

The second study used a logistic regression analysis to validate the findings of the first study that assessors who showed higher femininity would have less influence over the consensus discussion and that assessor sex would have no impact on the amount of influence that each assessor had over the decision making process. This study failed to verify either of these findings. Assessor sex was found to have an impact on the amount of influence that an assessor was allowed with regard to one of the assessment centre exercises, the case study, in that female assessors were allowed less influence. This did not support the findings of the first study but does support the identification of sex as a status characteristic (Webster & Foschi, 1988) and the past literature on sex differences in influence (Megargee, 1969; Carbonell, 1984). This study did not find any significant effect of assessor femininity upon the amount of influence that an assessor was allowed over the consensus discussion. The study therefore failed to support the findings of the first study in that there was no significant effect of femininity on influence.

In its entirety the current research has used two alternative experimental designs, and has produced two opposing sets of results. When control over



the experimental situation is maximised, assessor femininity is found to have an impact upon influence but assessor sex is not. When a field study is used as an attempt to produce generalisable results, an effect of sex upon influence is found but the results fail to show any effects of femininity on influence. If these results are to be reconciled and understood so that conclusions regarding the influence hierarchy of an assessor team may be made, it is essential that the two experimental situations be examined more closely. It is therefore necessary to investigate the differences between the two studies in terms of experimental design and the sample used, so that the reasons behind the different findings can be discussed and directions for future research suggested.

#### **14.4 DISCUSSION OF FINDINGS**

It must be noted that despite the fact that the results of the two studies highlighted different assessor characteristics as having an effect on the amount of influence that the assessors were allowed over the consensus discussion, both studies demonstrated that that the final decision within an assessment centre was not based upon the exercise ratings alone. This suggested that other factors were having an impact upon the formulation of the final assessment centre decision. It is likely that these were related to the assessors in some way. Given the design of the two studies, there are two main bases on which the two studies can be compared. Firstly, the two studies differed in terms of the scenarios that were used in order to generate the data. Secondly, the people or sample from which the information was gathered can be compared. An examination of these two areas may provide an indication of the reasons behind the opposing findings of the two studies and lead to a deeper understanding of the development of the influence hierarchy within an assessor team.

#### **14.4.1 Characteristics of the experimental situation.**

The major difference between the two experimental scenarios is relatively striking. As discussed in chapter 13, the first study was conducted within a highly controlled laboratory-based setting whereas the second study used a field setting, therefore sacrificing control for a real life environment. While a design of the type used in the first study may optimise the internal validity of the experimental findings it may exclude factors or processes that exist in real life. While the simulation of an assessment centre that was used in the first study was designed to be as close to a real assessment centre as possible, it may have been missing some of the processes that occur within a real life assessment centre. The second study, using a field setting, did not have the control of the first study, but may have included those factors or processes which are excluded from the first study, therefore explaining the different results.

While it is likely that there are processes occurring in the field study that have been eliminated by the controlled environment of the laboratory-based study, this does not fully explain the differences in results. Past research has found sex differences in influence in laboratory-based studies, indicating that women have less influence over the group task within a controlled environment (Megargee, 1969; Carbonell, 1984). The present research however, only found sex differences within the field study, and then only with regard to one of the assessment centre exercises. The existence of additional factors within the field study may however be used to explain the lack of an effect of femininity in this study. It may be that femininity only had an effect on influence within the controlled environment of the laboratory-based study and that within a field setting this effect was over come by other factors or processes. Previous literature on the effect of sex typing on influence has concentrated on masculinity rather than femininity and research to examine the impact of both sex and masculinity or femininity on influence is sparse and inconclusive. A number of authors have suggested that gender role orientation is a better predictor of influence than biological sex (Goktepe & Schneier, op cit; Kent & Moss, op cit) but have focused on the gender role of

masculinity rather than femininity. Further research into the effect of femininity on influence within task groups is therefore needed.

A second comparison that may be made between the two studies is that of the nature of the task. A number of authors have suggested that the sex typing of the task may affect the salience of sex in terms of the effect that sex has upon the amount of influence that an individual is allowed over the group (Carbonell, 1984; Nyquist and Spence, 1986). While the participants in both studies are performing a similar task of rating candidates and reconciling their individual ratings using a consensus discussion, the setting for this task is somewhat different. In the first study, the participants are rating candidates for experimental purposes only, and have a limited awareness of the wider scenario of the job role that they are selecting a candidate for. In the field study the assessors are selecting candidates to work within an organisation that they are a part of, and therefore are aware of the wider environment. It should be noted that the field study was set within a financial services organisation. If this environment may be viewed as being stereotypically masculine or male oriented in nature and the task in the simulation study can be described as neutral in terms of its sex typing, then this difference between the two studies may explain the different results in terms of sex differences in influence. Past literature (Carbonell, op cit) has suggested that men are likely to have more influence over the group task when that task is masculine in nature. This is therefore supported by the fact that sex differences were found in the field study (set within a stereotypically masculine organisation) but not within the laboratory-based study. It should also be noted that the sex differences in the field study were only found within one exercise. This exercise was the case study and is more financially based than the group exercise or criterion-based interview. The fact that the task may be seen as stereotypically masculine adds to the results' support of the literature.

#### **14.4.2 Characteristics of the sample.**

The second basis on which the two studies can be compared is that of the sample, or the participants. The participants in the first study were taken from the general population and as such came from a variety of backgrounds and occupational fields. The participants in the second study were all employees and assessors within a large financial services organisation. As members of the same organisation it is possible that the participants in study two shared particular characteristics. It may be that the organisation tends to recruit individuals with certain traits or that a certain 'type' of individual is attracted to that occupation or organisation. In addition to this, it is possible that individuals with particular personality traits volunteer or are selected to be assessors. It may therefore be that, as opposed to the wide variety of people who participated in the first study, the sample used in the second study all possessed similar characteristics, or in particular, similar levels of those characteristics that were investigated.

This suggestion is supported by the relatively small amount of variance found within the femininity scores in the field study. It may be that individuals, who work for a financial services organisation, and in addition act as assessors for that organisation, tend to have a similar level of femininity. If the participants cannot be distinguished in terms of their femininity scores (regardless of whether these were measured using the BSRI or PAQ) this may explain why an effect of femininity was not found in the field study. If the femininity of the participants in the two studies is compared, it can be seen that the variance in femininity scores in the first study is larger than in the second study. For example, the variance among PAQ and BSRI scores in study one were 16.79 and 0.45 respectively, whereas the variance in PAQ and BSRI scores for those assessors marking the Criterion Based Interview in study two were 10.20 and 0.13 respectively. The mean PAQ and BSRI femininity scores were 21.63 and 4.63 for the participants of study one and 21.54 and 4.63 for the assessors marking the Criterion Based Interview in study two. The similarity between these means and the difference in variance suggests that the assessors in the second study tended to be of average femininity,

whereas the participants of the first study (from the general population) showed a wider range of femininity scores. Further research within other organisations is needed in order to investigate this suggestion fully.

A factor that may be of vital importance when comparing the two studies concerns the group members' knowledge of each other's task competence. The assessor groups in the simulation study consisted of individuals who had no prior contact with each other. These participants therefore had no knowledge whatsoever of each other's competence or past experience at rating candidates. The assessors in the second study however worked within the same organisation, may have trained as assessors together and were likely to have been part of the same assessor team at a number of assessment centres. It is therefore likely that the assessor teams in this study had a reasonable amount of knowledge regarding each other's competence, both as an assessor and within their job role as a part of the organisation.

In order to appreciate the importance of this comparison between the two studies, it is necessary to look back at the literature regarding status hierarchies in task groups and expectation states theory. Hollander (1960) identified task competence and legitimate status such as organisational rank as the main factors that must be demonstrated by an individual if he or she is to be allowed to exert influence over a group task and later provided empirical evidence of this suggestion (Hollander, 1961a). Expectation states theory (Berger, Cohen & Zelditch, 1966; Berger & Conner, 1969; Berger, Cohen & Zelditch, 1972; Berger, Fisek, Norman & Zelditch, 1977; Berger, Wagner & Zelditch, 1983) suggested that expectations regarding an individual's performance develop as a result of interaction and that those group members who are awarded higher expectations are allowed more influence within the group. Expectation states theory however presumes that all of the group members are relatively equal at the onset of the interaction. Berger, Wagner and Zelditch (op cit) proposed that one of the circumstances under which expectation states theory is relevant is when 'all the members are equal in terms of external statuses' (p.6). It can be suggested therefore that when the members of a group have a knowledge of each other's task competence,

they will not be equal in terms of external status and therefore expectations states and the influence hierarchy of the group will be based upon legitimate status or actual task competence rather than upon status or personality characteristics.

It is possible in a real-life assessment centre, that the assessors are not equal in terms of organisational status. If this was the case in the second study then it may be that assessors of a higher occupational rank were allowed more influence over the consensus discussion. The literature on group dynamics has consistently shown that individuals of a higher rank are allowed more influence over the group task (Torrance, op cit; Strodbeck & Mann, op cit; Ridgeway, op cit). It is important to establish if legitimate status differences such as those in organisation rank existed within the assessor teams used in study two, and as such may have acted as the basis of the influence hierarchy rather than status and personality characteristics. An examination of the organisational grades of the assessors (table 8) demonstrates that the vast majority of assessors were of grades 9–11, indicating that this should not have been the case.

It can be seen how the fact that the members of the assessor team in the second study are aware of each other's competence as an assessor could have had a significant impact upon the experimental results. It is likely that the influence hierarchy within these assessor teams was based primarily upon the group member's perceptions of each other's competence either as an assessor or within their job role, rather than upon status or personality characteristics. This may explain the failure of the second study to replicate the effect of femininity on influence that was found in the first study. Further research regarding the effect of knowledge of task competence upon the influence hierarchy of an assessor group is much needed.

## **14.5 SUMMARY AND CONCLUSIONS**

The combination of the results of studies one and two demonstrated that the final decision in an assessment centre is not based purely upon ratings of the candidates' performance on the assessment centre exercises. The fact that the relationship between the three average assessor ratings and the final decision was not perfect suggests that the final assessment centre decision was affected by some factor other than the exercise scores. The findings of both studies also suggest that this might be due to the composition of the assessor group in that the amount of influence that each assessor was allowed over the consensus discussion may have been affected by the characteristics of that assessor. The findings of the two studies differ, however, in that they identified different assessor characteristics as having an impact on the amount of influence that each assessor was allowed over the consensus discussion. The first study found that assessors with high degree of femininity (regardless of sex) had less influence over the final decision whereas the second study found that assessors who were biologically female were allowed less influence.

The differences in the findings of the two studies might be explained by comparing the nature of the studies and the participants used. The two studies differ in terms of amount of control that was achieved over the situation and also in terms of the nature of the environment in which the task was set. The assessor teams differ with regard to the fact that the team used in study one consisted of individuals from the general population who had no prior knowledge of each other and the team in the second study were all assessors in a large financial services organisation who had at least some knowledge of each other's task competence.

While the differences between the two sets of findings can be explained in terms of the scenario and participants used, the need to identify those characteristics of assessors that may affect the influence hierarchy of the assessor team remains. At the very least, the findings of this research demonstrate that inequalities within assessor teams do exist and as such may

be one of the reasons behind the inferiority of the consensus discussion method. It is therefore essential that the nature of the influence hierarchy within an assessor team continue to be investigated.

The findings of this research have produced partial support for the theory of status characteristics and expectation states and have also provided support for past findings on sex differences in influence, in that an effect of sex on influence was found in the second study. The fact remains that the consensus discussion in an assessment centre is essentially a group decision-making process, and as such should be subject to the same group dynamics as in other task groups. It is therefore also important that the interaction within the assessor team continues to be examined within the framework of the past literature on group decision-making in general.

The major value of this research has been in identifying that differences in influence within assessor teams exists, therefore supporting the work of Schmitt (op cit) and Zedeck (op cit), and also in demonstrating that individual differences between assessors can affect this influence hierarchy. These findings should therefore help to lay the foundation for future research into the reasons behind the inferiority of a clinically formed decision and as such to add to the development and improvement of the assessment centre as a selection method.

## **14.6 IMPLICATIONS FOR FUTURE RESEARCH**

The comparison of the first and second studies has led to a number of differences between the two studies which need to be addressed if any conclusions are to be made regarding the nature of those assessor characteristics that effect the influence structure of the assessor team. It has been suggested both in the literature and as a result of the findings of this research that the nature of the task or organisation may have an impact on the salience of sex as a status characteristic. Sex differences were only found in the present research within a stereotypically masculine organisation



and then only with regard to a particularly male-oriented exercise. It is essential that this suggestion be investigated if the group dynamics of the assessor team are to be understood. Is it true that female assessors only have less influence over the consensus discussion within a masculine organisation? Will male assessors have less influence within a stereotypically feminine organisation, such as nursing? The fact that no sex differences in influence were found when the assessment task could be described as gender-neutral may support this suggestion. It is important that the simulation study is repeated with a masculine or feminine slant and that the field study be repeated within both stereotypically masculine and feminine and gender-neutral organisations in order to address this issue. It may also be that the assessors' masculinity has an impact on influence within a stereotypically masculine organisation. This should therefore also be investigated.

The lack of an effect of femininity on influence in the second study may be entirely due to the lack of variance within the assessor femininity scores. It may be that in an assessor team with a wider range of femininity scores, there would be an effect of femininity on influence. It is essential that the field study be repeated using a group of assessors who vary more in terms of femininity. If it can be shown that feminine assessors have less influence within a field setting, then this would add external validity to the findings of the simulation study. It may then be possible to generalise the impact of femininity on influence over the consensus discussion to assessment centres in general. It should also be noted that, due to the findings of study one, the second study concentrated on the impact of femininity on influence, whereas past literature has concentrated on masculinity. Both masculinity and dominance were discarded as personal characteristics because of the lack of a relationship between these and influence in the first study. Future research, however, should investigate the effect of masculinity and dominance upon influence within a field setting.

The area that probably most warrants further investigation concerns the effect of the assessors' knowledge of each other's task competence. The literature has suggested that the influence hierarchy of a group may be based upon the

group members' knowledge of each other's task competence, in that those individuals who are perceived to have higher task competence will be allowed more influence over the group task. This may be supported by the failure to find any effect of femininity in the second study. There are a number of questions that need to be asked regarding the effect of group members' knowledge of each other's task competence on influence. How much knowledge does an individual need before their performance expectations are based on this? Are these expectations based upon an assessor's competence as an assessor or in their job role? Can perceptions of an individual's task competence be modified? It is somewhat surprising that these questions do not appear to have been addressed within the literature. It is important that these questions should be investigated so that the basis of the influence structure of the assessor team can be identified. The most appropriate basis for investigating these issues would probably be to use a simulation study similar to that used in the first study and to somehow manipulate the participants' knowledge of each other's task competence. Once the relationship between knowledge of task competence and influence within an assessor team is established, it is then possible to examine the impact of other factors such as status or personality.

It can be seen that the research conducted here is merely a basis for further research. The fact that the final assessment centre decision is not based purely on the exercise ratings is somewhat concerning in terms of its implications for assessment centre validity. The findings that individual differences between assessors can affect the amount of influence that any one assessor has and as such affect the nature of the decisions made, demonstrate that it is important that the nature of the influence hierarchy in an assessor team should be further investigated.

The identification of those factors that lead to differences in the amount of influence that each assessor is allowed over the consensus discussion, and the eventual elimination of any detrimental effects of these factors, may lead to a less biased assessment centre decision. This in turn may improve the validity of the clinically formed assessment centre decision. This is essential if

**organisations are to continue to use the consensus discussion process. It is attention to details such as these that will lead to the continued development and improvement of the assessment centre as a means of selection.**

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## **APPENDIX A**

### **CANDIDATE EXERCISE :**

You are working for a company that owns a small retail chain of toy shops. The company specialises in handmade teddy bears, which are dressed in a variety of traditional British costumes, but also sells a large range of other children's toys and games. At present the company owns four shops, all of which are based in the London area.

Due to increased profits over the last two years, the company has decided to expand its chain of stores. Extensive market research has shown that the stores currently obtain a large proportion of their income from the tourist market. The marketing department has decided, as a result of this research and the extensive competition from larger toy stores within Central London, that the new retail outlet should be located within a U.K. airport.

The marketing department has identified three possible locations for this new outlet:

1. London Heathrow
2. London Gatwick
3. London Stansted

Please read the provided information regarding each location. The group will then be allowed twenty minutes in which to discuss the options, after which a decision should be made.

## **GENERAL INFORMATION FOR CANDIDATES:**

### **Location: LONDON HEATHROW AIRPORT**

The proposed site at London Heathrow Airport is situated in the departure lounge at Terminal 1. The site actually consists of two units which have been combined to allow a relatively large area. The site has recently been vacated by a fast food chain, so requires some renovation.

Lease – high

Overheads – high

### **Location: LONDON GATWICK AIRPORT**

The proposed site at London Gatwick Airport is based in the South Terminal, before passport control. The site consists of a medium sized unit, which has recently been vacated by a high street cosmetic store.

Lease – medium

Overheads – high

### **Location: LONDON STANSTEAD AIRPORT**

The proposed site at London Stansted Airport is one of a number of new units within the departure lounge. All units are of medium size and are fully fitted, including CCTV.

Lease – high

Overheads – low

**No. of passengers using UK airports (1996):**

<b>Airport</b>	<b>No. of passengers (1996)</b>	<b>% rise over 1995</b>
<b>London Heathrow</b>	56 million	2.9
<b>London Gatwick</b>	24 million	7.9
<b>London Stansted</b>	5 million	24.0
<b>Birmingham</b>	3 million	9.6
<b>London Luton</b>	2.5 million	33.0



Hourly Distribution of Passengers - 1995

Passenger Characteristics 1995/96

Monthly Distribution of Passengers - 1995

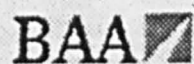
Daily Distribution of Passengers - 1995

Statistics for Major UK Airports - 1995

Peak Month and Peak Day, 1995 : Air Transport Movements

Peak Month and Peak Day, 1995 : Passengers

Traffic at BAA Airports, 1995/96



## Traffic at BAA Airports, 1995/6

## TERMINAL PASSENGERS

	Domestic		Europe		North Atlantic		Other Long Haul		Total	
	Passengers	%	Passengers	%	Passengers	%	Passengers	%	Passengers	%
	(000's)	change	(000's)	change	(000's)	change	(000's)	change	(000's)	change
Heathrow	7,362.6	2.5	26,785.4	0.7	9,645.7	13.1	11,024.5	13.1	54,818.3	5.3
Gatwick	1,831.1	11.0	12,677.1	8.9	4,304.4	7.5	4,155.8	6.8	22,968.4	8.4
Stansted	912.6	74.8	2,992.2	14.4	13.8	-50.9	210.4	8.0	4,129.0	22.9
London Area Total	10,106.3	8.0	42,454.8	3.9	13,963.9	11.2	15,390.8	11.2	81,915.7	6.9
Southampton	424.5	7.7	92.9	8.3	-	-	0.1	-	517.5	7.8
Glasgow	2,680.4	8.8	1,972.7	-0.2	383.0	-23.2	491.2	-4.1	5,527.3	1.4
Edinburgh	2,491.2	6.9	835.1	29.5	12.3	16.6	50.9	-5.3	3,389.5	11.5
Aberdeen	1,949.7	4.3	284.6	12.5	0.5	-	31.5	-8.7	2,266.3	5.1
Scottish Total	7,121.3	6.9	3,092.4	7.5	395.7	-22.2	573.6	-4.5	11,183.1	5.0
BAA Airports Total	17,652.1	7.6	45,640.1	4.1	14,359.6	9.9	15,964.5	10.6	93,616.3	6.7

## AIR TRANSPORT MOVEMENTS

	Domestic		Europe		North Atlantic		Other Long Haul		Total	
	ATMs	%	ATMs	%	ATMs	%	ATMs	%	ATMs	%
	change	change	change	change	change	change	change	change	change	change
Heathrow	72,067	-3.3	254,573	1.1	42,622	5.3	51,770	10.5	421,032	1.8
Gatwick	34,207	5.2	122,773	10.6	19,018	2.4	22,260	8.5	198,258	8.6
Stansted	20,991	28.7	44,462	8.2	1,284	6.7	1,781	16.1	68,518	13.9
London Area Total	127,265	3.2	421,808	4.5	62,924	4.4	75,811	10.0	687,808	4.8
Southampton	17,422	-2.3	4,902	-14.2	-	-	-	-	22,324	-5.2
Glasgow	50,265	4.8	19,874	-8.9	2,522	-20.8	2,601	-3.8	75,262	-0.5
Edinburgh	52,524	3.8	12,169	13.0	74	39.6	280	-12.5	65,047	5.4
Aberdeen	72,735	2.6	7,074	3.3	-	-	213	0.0	80,022	2.7
Scottish Total	175,524	3.6	39,117	-0.8	2,596	-19.8	3,094	-4.4	220,331	2.3
BAA Airports Total	320,211	3.1	465,827	3.8	65,520	3.2	78,905	9.4	930,463	3.9

Note: Origins and destinations are classified according to ultimate origin or destination of aircraft in the case of multi-sector flights.

[To the Definitions](#) | [More info](#)

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## List of Retailers

### Our retail outlets

#### HEATHROW

##### TERMINAL 1

*Tax and duty free:* Alpha Retail Trading

*Specialist shops:* Austin Reed, Bally, The Body Shop, The Beauty Centre, Boots the Chemist, Burberry, Butler & Wilson, Caviar House, Chinacraft, Clarks, Chocolate Box, Crabtree & Evelyn, Dixons, Drugstore, The Disney Store, Faxcessory, Gassan, HMV, Liberty, Links of London, Marlboro Classics, Olympus, Our Price, Principles, Rolling Luggage Company, Selfridges, Scotch House, Sock Shop, Sunglass Hut, Swatch, Thomas Pink, Tie Rack, Vyella, Whiskies of the World, Wine Bin

*Bookshops:* W H Smith

*Catering:* Burger King, Costa Coffee, Café Select, Forte Restaurants, Frank's Deli, Garfunkel's, Haagen-Dazs, Harry Ramsden, McDonald's, Prêt à Manger, Pubmaster, Scandinavian Service Partner, Travellers Fare

*Bureaux de change:* International Currency Exchange, Thomas Cook

##### TERMINAL 2

*Tax and duty free:* Allders International

*Specialist shops:* Accessorize, Austin Reed, Bally, The Body Shop, Boots The Chemist, Caviar House, Chocolate Box, Dixons, Faxcessory, The Gap, Gassan Diamonds, Hacketts, Knickerbox, Liberty, Our Price, Past Times, Selfridges, Sock Shop, Sunglass Hut, Swatch, Tie Rack, Timberland, Virgin, Whittard of Chelsea

*Bookshops:* W H Smith

*Catering:* Burger King, Costa Coffee, Forte Restaurants, The London Tavern, McDonald's, Scandinavian Service Partner

*Bureaux de change:* International Currency Exchange, Thomas Cook, Travelex

##### TERMINAL 3

*Tax and duty free:* Alpha Retail Trading, Harrods International Ltd

*Specialist shops:* Accessorize, Bally, Berry Bros. & Rudd, The Body Shop, Boots The Chemist, Cable and Co, Caviar House, Chocolate Box, Crabtree & Evelyn, Dixons, Drugstore, Ferragamo, Gassan Diamonds, Glorious Britain, Hermes, HMV, I Santi, Liberty, Mappin & Webb, The Nature Company, Past Times, The Scotch House, Sock Shop, Sunglass Hut, Swatch, Thomas Pink, Tie Rack, Thorntons

*Bookshops:* Books Plus by Alpha Retail Trading

*Catering:* Burger King, Delifrance, Forte Granary Restaurant, Garfunkel's, Juicy Lucy, National Leisure Catering, Travellers Fare

*Bureaux de change:* Thomas Cook, Travelex



**TERMINAL 4**

*Tax and duty free:* Alders International, Alpha Retail Trading, Harrods International Ltd Specialist shops: Aquascutum, Austin Reed, Bally, The Body Shop, Caviar House, Chocolate Box, Ciro, Hamleys, Harrods, HMV, Jaeger, Lloyds Chemist, Mappin & Webb, The Scotch House, Sock Shop, Sunglass Hut, Swatch, Tie Rack, Whittard of Chelsea

*Bookshops:* W H Smith

*Catering:* Caviar House, Costa Coffee, Forte Restaurants, Garfunkel's, Laurentis Coffee Bar, J D Wetherspoon,

McDonald's, Steffs, Travellers Fare

*Bureaux de change:* Thomas Cook, Travelex

**MULTITERMINAL CONCESSIONS**

*Car parking:* Business APCOA, Central Parking Systems, Pink Elephant

*Long-term:* NCP Flight Path

*Short-term:* NCP, Central Parking System

*Car rental:* Alamo, Avis, Budget, Eurodollar, Europcar, Hertz

*VAT cash refunds:* VATBACK

*Payphones:* BT, 3C Communications, New World, UK Telecom

*Advertising:* Skysites

*Petrol stations:* BP

**GATWICK****NORTH TERMINAL**

*Tax and duty free:* Alpha Retail Trading

*Specialist shops:* Accessorize, Austin Reed, Bally, The Body Shop, Boots The Chemist, Burtons, Cable & Co, Caviar House, China and Glass, Chocolate Box, Dorothy Perkins, Duty Free Electronics, HMV, Knickerbox, Lillywhites, Next, Off the Cuff, Our Price, Past Times, The Scotch House, Simpson of Piccadilly, Sock Shop, Sunglass Hut, Swatch, Teddys, Tie Rack, Toys and Souvenirs, Walker and Hall, Whittard of Chelsea

*Bookshops:* Waterstone's, W H Smith

*Catering:* Bass Tavern, Burger King, Costa Coffee, Garfunkel's, J D Wetherspoon, McDonald's, National Leisure Catering, Steffs, Upper Crust

*Bureaux de change:* Thomas Cook, Travelex, TTT

**SOUTH TERMINAL**

*Tax and duty free:* Alders International

*Specialist shops:* Accessorize, Astrology World, Bally, Blazer, The Body Shop, Boots The Chemist, Buchair, Burtons, Caviar House, Chinacraft, Chocolate Box, Clarks, Dixons, The Disney Store, Dorothy Perkins, Glorious Britain, HMV, Into the Blue, Knickerbox, Monsoon, The Nature Company, Nike, Olympus, Our Price, Principles, Sock Shop, Studio Stores, Sunglass Hut, Swatch, Tie Rack, Torq, Unique Crafts, Warehouse, Walker and Hall, Warner Bros., Whistlestop, Whittard of Chelsea, Wilsons Leather

*Bookshops:* Books etc, John Menzies

*Catering:* Baskin Millies, The Village Inn, Costa Coffee, Delifrance, Forte Granary restaurant, Garfunkel's, McDonald's, The Shakespeare Inn, Steffs, Sizzzzzling Sausage, Spud-U-Like, Upper Crust

*Bureaux de change:* Thomas Cook, Travelex, TTT

*Other:* Coral Bookmakers, Cinemotion

## MULTITERMINAL CONCESSIONS

*Car parking:* APCOA, NCP, Sterling Granada  
*Car rental:* Alamo, Avis, Budget, Eurodollar, Europcar, Hertz  
*Cash refunds:* FEXCO  
*Payphones:* BT, 3C Communications, UK Telecom  
*Advertising:* Skysites  
*Petrol stations:* Texaco

## STANSTED

*Tax and duty free:* Allders International  
*Specialist shops:* Accessorize, The Body Shop, Boots the Chemist, Cadbury, Chocolate Box, Music on the Move, Historical Research, I Santi, Pearl House, Olympus, Sunglass Hut, Tie Rack, Whistlestop  
*Bookshops:* W H Smith  
*Catering:* Bewleys, Burger King, Butlers, Steffs  
*Bureaux de change:* Thomas Cook  
*Car parking:* Ralph's coaches  
*Car rental:* Avis, Budget, Europcar, Hertz  
*Payphones:* Bass Leisure, BT, New World, UK Telecom  
*Advertising:* Skysites

## SOUTHAMPTON

*Tax and duty free:* Allders International  
*Bookshops:* News Travel  
*Catering:* Bewleys, The Coffee Shop  
*Bureaux de change:* Travelex  
*Car parking:* Meteor  
*Car rental:* Alamo, Avis

## GLASGOW

*Tax and duty free:* Allders International  
*Specialist shops:* Best of Scotland, The Body Shop, Boots The Chemist, Dorothy Perkins, Oddbins, Olympus, Our Price, Sock Shop, Strang, Tartan Plus, Thorntons, Tie Rack, Torq  
*Bookshops:* John Menzies  
*Catering:* Costa Coffee, Forte Granary Restaurants, Garfunkel's, Grant Catering Connoisseurs, McDonald's, Pubmaster Ltd, J&R Tennent  
*Bureaux de change:* Thomas Cook, Travelex  
*Car parking:* NCP  
*Car rental:* Alamo, Avis, Eurodollar, Europcar, Hertz  
*Advertising:* Skysites

## EDINBURGH AIRPORT

*Tax and duty free:* Allders International  
*Specialist shops:* Best of Scotland, Salmon Pool, Tie Rack, Torq  
*Bookshops:* Alpha Retail Trading  
*Catering:* Costa Coffee, Travellers Fare  
*Bureaux de change:* International Currency Exchange  
*Car parking:* Meteor Parking  
*Car rental:* Alamo, Avis, Europcar, Hertz  
*Advertising:* Skysites

## ABERDEEN AIRPORT

*Tax and duty free:* Allders International



# Facts & Figures

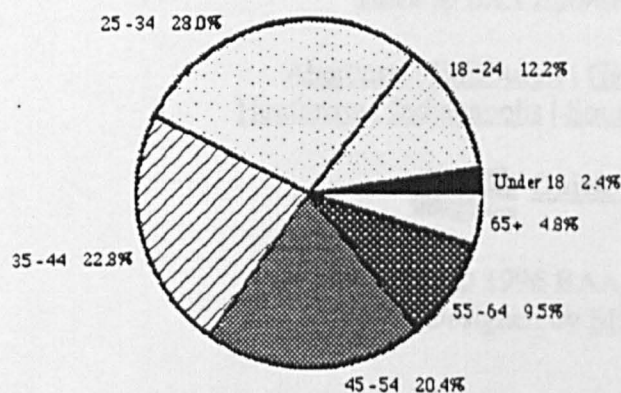
BAA

## Passenger Characteristics

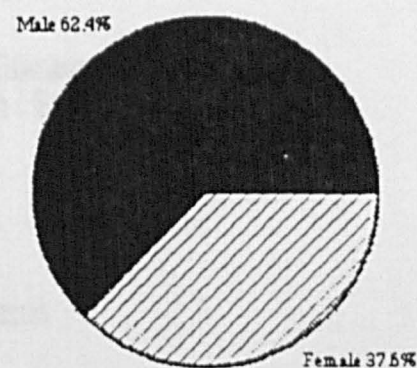
Financial Year 1996/97

From a continuous survey of 76,000 passengers per year, known as 'Paxfax', BAA obtains a comprehensive picture of its air passenger customers. The following charts summarize a few of the many glimpses into its users which this data base provides. Charts 1-4 relate to all BAA passengers, charts 5 & 6 are confined to Heathrow and Gatwick.

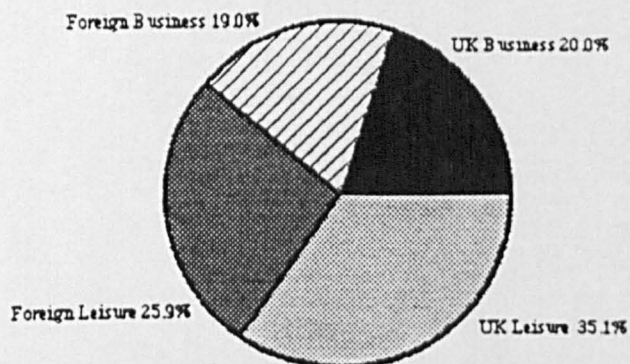
1. Age



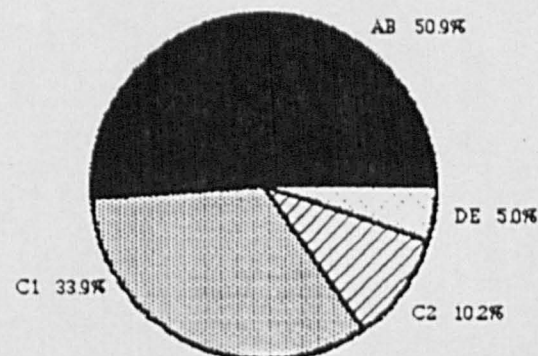
2. Sex



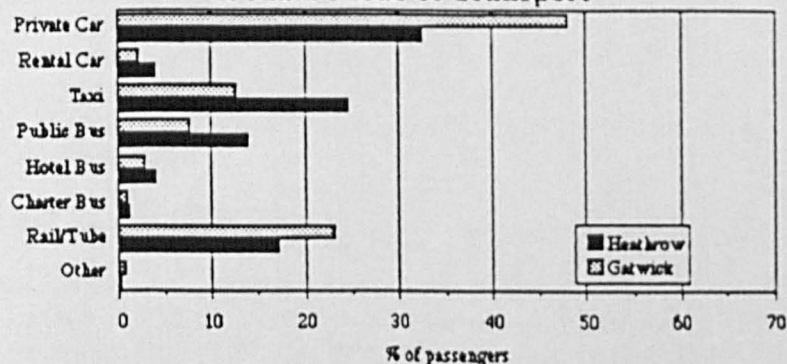
3. Passenger Type



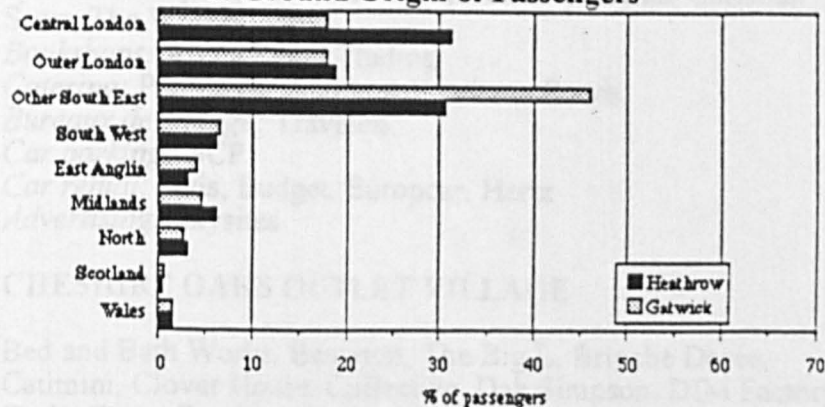
4. Socio - Economic Group



5. Main Mode of Transport



## 6. Ground Origin of Passengers



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*Specialist shops:* Best of Scotland, Box of Delights, Christian Scott, The Whisky Shop  
*Bookshops:* Alpha Retail Trading  
*Catering:* Pubmaster, Sports and Leisure Foods  
*Bureaux de change:* Travelex  
*Car parking:* NCP  
*Car rental:* Avis, Budget, Europcar, Hertz  
*Advertising:* Skysites

## CHESHIRE OAKS OUTLET VILLAGE

Bed and Bath Works, Benetton, The Big L, Brioche Dorée, Catimini, Clover House, Collective, Dak Simpson, DIM Factory Outlet Store, Dorothy Perkins, Edinburgh Crystal, Elegance, Eminence, Equator, Famous Footwear, Fosters, Fred Perry, Fruit of the Loom, Garfunkel's, Helly Hansen, Jaeger, James Barry, Jane Shilton, Jeffrey Rogers, Jo Bloggs, John Partridge, JoKids, Jumpers, Kurt Geiger, Lee Cooper, Levi, Liz Claiborne, McDonald's, Mexx, Next to Nothing, Nike, The Paper Tree, Paco, Paul Costelloe, Pilot Clothing, Principles, Ravel, Remington, Russell Athletic, Sapphire books, The Scotch House, The Suit Co., Suits You, Tie Rack, Timberland, Tog 24, Toyworld, Villeroy & Bosch, Viyella, Woods of Windsor

## BAA PITTSBURGH

Alberto's Pub and Pizzeria, Americana, Auntie Anne's Pretzels, Au Bon Pain, The Athlete's Foot, Bain's Deli, Bally of Switzerland, The Body Shop, Bon Voyage Travel Store, Candy Express, Cartoon Cinema Classics, Charley's Steakery, Chase's Bar, Coffee Beanery, Connection Bar, Ciro, Electronics Boutique, Ethel M Chocolates, Fenton Hill American, Frank & Stein, Freshen's Premium Yoghurt, The Gap/Gap Kids, Gift Bearers, The Great Steak and Potato, Horlick's, Johnston & Murphy, King's Jewelry, Krazy 8's, La Prima Espresso, Leathercare shoeshine, Louis' Bistro, Legends of the Game, McDonald's, Munchies, The Nature Company, Paradies News, Pennsylvania!, PGA Tour Shop, Pocket Change amusements, Roy Rogers, Sbarro, Signatures Stationery, Skooter's Bar, Sox Appeal, Speedo Authentic Fitness, The Steak Escape, Sunglass Hut, TGI Friday's, Thrift Drug (Cosmetics & Game World Remedies), Tie Rack, USAir Gift Shop, The Wall Music, W H Smith, Waterstone's Booksellers, Wilsons - The Leather Experts, Wok and Roll

*Other services:* Integra Bank, Mutual of Omaha, PNC Financial Centre, Stress Breakers Massage

## INDIANAPOLIS

ASU (Rolling luggage), Auntie Anne's, Baskin Robbins, Caffé Connection (espresso), Charnel, The Grove (Natural Snacks), Host Marriot outlets, Lollipops Cards and Gifts, Paradies News, PGA Tour Shop, Sunglass Hut, Sweet Factory, Wileswood, Wilsons Leather

## TROYES OUTLET VILLAGE

Acced, Bally, Catimini, Chaussetterie DD, Chevignon, Chevignon Kids, Christine Laure, Dicaja, Disney Stock, Eminence, Gerard Fortier, Gregory Pat, Hariboland, Jalla, Jean Bourget, Joinville, Kookai, Kunert, La City, Liz Claiborne,



Marcelle Griffon, McDonald's, Naf Naf, Naf Naf Enfants, Nike,  
Nogaret, Office de Tourisme, Olympia, Pallio Shop, Petit  
Bateau, Petit Boy, Polo Ralph Lauren, Quiksilver, Reebok,  
Salamander, Sara Lee, She, Stock B, Style de Vie, Sym,  
Timberland, Tony Boy, VF Factory, Weill, Weinberg, Well.



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### Location

London Stansted Airport is just over 30 miles to the North-East of London, at junction 8 on the M11, less than 20 minutes from the M25.

### Access by Car

M11 provides quick and easy access to the airport. To the South, after the M11 and Dartford river crossing into London, Stansted is on the A10. From the north, the A1, A10, A11 and the important A14 all link with the M11 to provide easy routes from East Anglia and the Midlands. The A14 is a dual carriageway linking Bedfordshire and Hertfordshire, and to the north, the A14 meets the Essex and Suffolk. Extensive long and short term parking facilities are available. Pre-booking is necessary.

### Access by Train

The railway station at London Stansted is only a short walk from the terminal. The 'Stansted Sky Train' operates every 30 minutes with a direct service to London's Liverpool Street station with a journey time of just 41 minutes. A direct service to Liverpool Street is also available to the London Underground via the Central line, where the 2500 hrs service runs from Liverpool Street on Mondays to Fridays.

For all train information call 0745 454 454

### All enquiries

Contact our Call Centre on 01279 330000

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*Quick Index*



## How to get there

### BAA STANSTED



#### Location

London Stansted Airport is just over 30 miles to the North East of London, at junction 8 on the M11, less than 20 minutes from the M25.

#### Access by Car

M11 provides quick and easy access to the airport. To the South, links to the M25 and Dartford river crossing put London Stansted within easy reach of North Kent. From the north, the A1, A10, A11 and the improved A14 all link with the M11 to provide easy routes from East Anglia and the Midlands. The A505 and A414 link London Stansted with Bedfordshire and Hertfordshire, And to the east, the A120 and A414 provide access into Essex and Suffolk. Extensive long and short stay car parks are available and no pre-booking is necessary.

#### Access by Train

The railway station at London Stansted is built directly under the Terminal. The 'Stansted SkyTrain' operates every 30 minutes into a dedicated platform at London's Liverpool Street station with a journey time of just 41 minutes. All trains serve Tottenham Hale for connection to the London Underground Victoria Line, except the 0500 hrs departure from Liverpool Street on Mondays to Fridays.

For all train information call 0345 484 950.

#### All enquires

Contact our Call Centre on 01279 680500

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## BAA STANSTED

### Buses and Coaches

**Cambridge Coach Services** connects London Stansted with Heathrow and Gatwick airports, Cambridge, High Wycombe, Oxford, Braintree, Colchester and Ipswich. Telephone (01223) 236333.

**Eastern National** serves a range of local towns including Bishop's Stortford, Braintree, Chelmsford, Colchester, Dunmow and Southend. Telephone (01245) 353104.

**Flightline** connects London Stansted with Victoria Coach Station, at Marble Arch, Baker Street and Finchley Road Underground Stations. Telephone (0990) 747777.

**Jetlink** connects London Stansted with Norwich, Thetford, Newmarket, Brighton and Heathrow and Gatwick airports. Telephone 0990 747777.

**Town Link** serves Bishop's Stortford, Brentwood, Epping, Harlow, Romford and Lakeside Shopping Centre. Telephone (01279) 426349 or (01279) 421971.

### Underground

The airport railway station is part of the terminal. From the platforms access to the terminal is by lift, escalator or ramp. Free trolleys are available on the platforms. The railway ticket office and automatic ticket machines are located in the station. Telephone 0345 484950.

### The Stansted Skytrain

The Stansted Skytrain rail link with London's Liverpool Street Station operates every 30 minutes for most of the day with extra trains between 16.45 and 22.45 on Sundays. The fastest journey time between the airport and Liverpool Street is 41 minutes. All trains stop at Tottenham Hale\* for the London Underground Victoria Line link to the West End and other British Rail London termini, including King's Cross, Euston, Victoria and Paddington (change at King's Cross). the journey time between the airport and Tottenham Hale is 30 minutes. On Mondays to Saturdays the first train arrives at London Stansted at 0541 and on Sundays at 0743. These trains depart from Liverpool Street at 0500 (Mondays to Saturdays) and 0700 (Sundays). The last Stansted Skytrain from the Airport leaves at 2359 daily.

*\*Except the first service departing Liverpool Street 0500 - Mondays to Saturdays*

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# Facts & Figures

**BAA**

## UK AIRPORTS

	TERMINAL PASSENGERS		AIR TRANSPORT MOVEMENTS		CARGO (Tonnes)	
	(000's)	% change	(000's)	% change	(000's)	% change
<b>Aberdeen (Fixed Wing)</b>	1,929.3	6.8	46.2	2.4	4.5	14.3
<b>Aberdeen (Helicopters)</b>	447.7	2.2	36.5	7.0	1.6	14.6
<b>ABERDEEN Total</b>	<b>2,377.0</b>	<b>5.9</b>	<b>82.7</b>	<b>4.4</b>	<b>6.1</b>	<b>9.2</b>
Belfast / International	2,351.3	0.2	35.6	-10.2	27.2	-11.4
Belfast / City	1,360.8	6.3	35.3	8.5	1.2	16.9
Birmingham	5,352.5	3.1	76.8	3.2	8.0	12.6
Blackpool	85.2	13.2	6.9	25.7	0.1	-35.7
Bournemouth	161.6	63.2	4.6	-8.2	5.6	-5.6
Bristol	1,394.1	-2.6	28.0	-0.5	0.1	10.4
Cardiff-Wales	1,010.0	-2.7	17.1	3.5	0.7	-9.3
East Midlands	1,821.9	-3.0	39.6	5.4	104.7	26.6
<b>EDINBURGH</b>	<b>3,810.3</b>	<b>16.1</b>	<b>68.8</b>	<b>7.6</b>	<b>7.4</b>	<b>33.7</b>
Exeter	204.5	12.9	7.9	-11.0	-	-
<b>GLASGOW</b>	<b>5,471.6</b>	<b>0.9</b>	<b>75.6</b>	<b>1.0</b>	<b>11.6</b>	<b>-11.3</b>
Guernsey	846.2	4.8	40.6	-0.7	5.3	-1.6
Humberside	278.6	-0.7	9.2	-11.0	0.1	-30.6
Inverness	285.4	5.1	6.6	6.7	0.3	37.6
Isle of Man	605.2	13.6	20.2	11.6	4.2	7.6
Isles of Scilly / St Mary's	125.3	15.7	11.2	0.0	0.3	11.7
Jersey	1,645.0	2.0	49.5	-2.0	5.7	-0.9
Kirkwall	92.2	-0.3	9.2	-2.3	0.5	-1.2
Leeds/Bradford	1,052.5	13.8	24.7	-2.9	0.3	-31.6
Liverpool	619.8	23.2	26.9	16.6	28.4	-9.9
London City	725.9	31.0	25.9	41.6	-	-
<b>LONDON (GATWICK)</b>	<b>24,106.1</b>	<b>7.7</b>	<b>211.0</b>	<b>9.9</b>	<b>277.2</b>	<b>19.4</b>
<b>LONDON (HEATHROW)</b>	<b>55,722.8</b>	<b>2.9</b>	<b>426.9</b>	<b>1.9</b>	<b>1,052.5</b>	<b>0.9</b>
<b>LONDON (STANSTED)</b>	<b>4,811.4</b>	<b>23.6</b>	<b>77.5</b>	<b>17.3</b>	<b>107.2</b>	<b>15.2</b>
Luton	2,410.6	33.2	31.0	42.9	18.6	32.9
Manchester	14,484.7	-0.3	142.9	-3.6	78.8	-1.6
Newcastle	2,432.5	-2.1	41.1	11.6	1.2	-0.8
Norwich	257.9	2.0	14.1	19.7	0.2	1.2

Penzance (Heliport)	105.6	16.7	5.2	19.8	0.1	1.4
Plymouth	98.0	14.0	6.2	4.2	0.1	-25.4
Prestwick	521.8	66.9	9.5	67.5	21.8	9.2
<b>SOUTHAMPTON</b>	<b>549.4</b>	<b>8.0</b>	<b>24.1</b>	<b>6.9</b>	<b>0.7</b>	<b>-2.4</b>
Stornoway	94.4	-1.4	4.2	4.3	0.7	10.0
Sumburgh	400.8	-16.1	21.8	-14.3	1.0	-6.8
Tees-side	443.5	3.6	10.9	-5.3	0.1	-24.5
Unst	17.8	-76.0	1.6	-60.9	0.1	-74.6

Sources: BAA plc, Civil Aviation Authority and individual airports.

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## BAA GATWICK

**Car Park Information**  
**0800 844 844**

### Long Stay Car Parking

London Gatwick's long-term car parks are run by two companies, APCOA Parking Express and NCP Flightpath. You may use either of the two. The car parks, which are recommended for any stay over eight hours, are a short distance from the terminals. Courtesy buses are provided 24 hours a day to transfer between car parks and terminals.

On your return, please check your parking ticket for the name of the company you have parked with before taking a bus back to the car park.

### Short Stay Car Parking

Next to both terminals and connected by covered walkways. For stays of eight hours or less. Vehicles over 6' 3" for South Terminal and 7' for North Terminal should use the high vehicle parks, which are signposted.

## FAST TRACK BUSINESS CAR PARKS

Specially designated Fast Track car parks for business travellers are situated directly next to both terminals in the existing short-term multi-storey car parks. A fast track valet services is also available.

## PARKING FOR DISABLED DRIVERS

Bays for orange badge holders are reserved in the multi-storey car parks of both terminals, for short or long stay parking, giving level access into the terminal. To obtain this concession, the Orange Badge, a copy of the Orange Badge, or proof of Mobility Allowance, must be presented with the parking ticket to the cashier.

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## Airport Facilities

### BAA GATWICK

#### Postal Services

South Terminal, The Village  
Open 0700 to 1900 hrs, seven days  
a week.

There are post-boxes and stamp  
machines throughout the airport  
including for the first time in  
departure lounges in both  
terminals. Stamps are also  
available from Bureaux de  
Changes and news agents.

The post office has a post shop,  
offering a range of stationery and  
a specialist service for stamp  
collectors and customers looking  
for philatelic products, gifts and  
souvenirs.

**Telephone**  
01293 522331

#### Business Facilities

##### Hotels :

Both terminals at London Gatwick  
offer conference facilities:

**Meriden Hotel**  
North Terminal - 01293 567070

**Gatwick Hilton Hotel,**  
South Terminal - 01293 518080

##### Airport Fax Locations :

**North Terminal:** The Avenue,  
check-in concourse and  
international departure lounge.

**South Terminal:** arrival  
concourse, The Village,  
international departure lounge and  
en route to some aircraft gates.

#### Bureaux de Change

There are bureaux de change  
throughout both terminals at  
London Gatwick. For more  
information telephone BAA  
Shopping Information 0800  
844844.

#### Special Needs

##### Deaf and Hard of Hearing :

The airport information desk in  
North Terminal has an induction  
loop to assist those with hearing  
aids. South Terminal's  
information desk is equipped  
with a 'Minicom Supertel'  
telephone for the deaf and hard of  
hearing.

**Minicom Supertel**  
01293 513179

Some information desk staff are  
proficient in sign language.

##### Disabled Passenger Facilities :

Special assistance is available to  
disabled passengers and those  
with special needs. For  
passengers with wheelchairs,  
there are ramps and/or lifts  
wherever there is a change of  
level. Reserved seating is  
provided in the check-in areas  
and International Departure  
Lounges.

##### Further information available from:

Care in the Air from the  
Secretary, Air Transport Users  
Committee,  
Kingsway House,  
103 Kingsway,  
London WC2B 6QX.

### Cash Dispensers :

There are Barclaybank, Midland Bank and Nationwide Anglia Link cash dispensers in both terminals, an American Express Link dispenser on the rail concourse (South Terminal) and a Royal Bank of Scotland dispenser in the South Terminal departure lounge.

### Car Hire

The following companies have offices in both terminals at London Gatwick.

Alamo	0800 272300
Avis	01293 529721
Budget	0800 626063
Eurodollar	01293 619368
Europcar	01293 531062
Hertz	01293 530555

### Car Rental Return

To return cars to either terminal, please follow the approach road signs. V

### Other Car Rental Companies

Some car rental companies, with offices close to London Gatwick operate a courtesy coach service to and from the airport. Follow the signs from the terminals to 'courtesy coach' pick-up. The South Terminal car rental building is open 24 hours a day, 7 days a week. The North Terminal car rental building is open between 0600 hrs - 2200 hrs daily. Direct telephones linked to South Terminal Car Rental companies are available out of these hours

### Baby Care Rooms

Specially equipped rooms for feeding and changing babies are indicated by either a 'bottle' sign or a baby care symbol. Other changing facilities are provided en route to gates, in the transfer area and after passport control on arrival. There are fold-down tables provided in some ladies and gentlemen's toilets.

### Telephone

0171 242 3882

### Your Patient and Air Travel (a guide for doctors) from:

Medical Officer (Passenger Services),  
British Airways  
Health Centre,  
Queen's Building,  
Heathrow Airport,  
Hounslow,  
Middlesex TW6 2JA.

### Telephone

0181 562 7070

### Door to Door - A guide to transport for people with disabilities from:

Disability Unit,  
Department of Transport,  
Marsham Street,  
London SW1P 3EB.

### Telephone

0171 276 5257

Or from local authorities and voluntary organisations.

### Left Luggage

Excess Baggage Company provides a short term left baggage service in both terminals - check-in concourse, North Terminal, open 0600 - 2200 hrs and arrival concourse, South Terminal, open 24 hours.

### Charges per item:

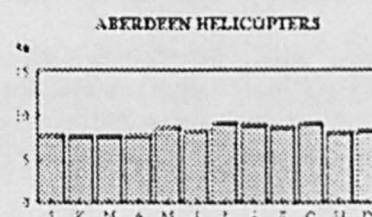
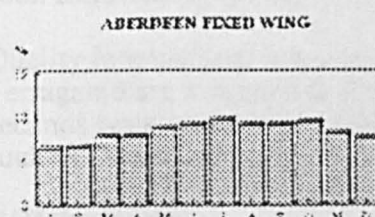
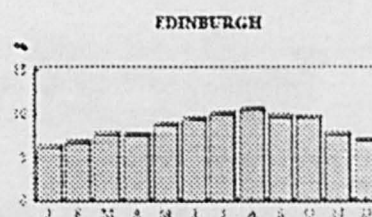
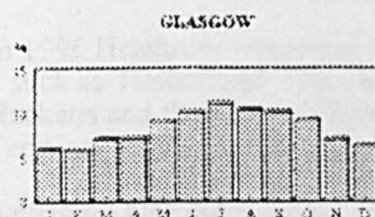
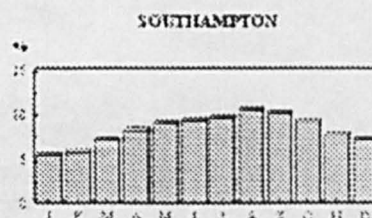
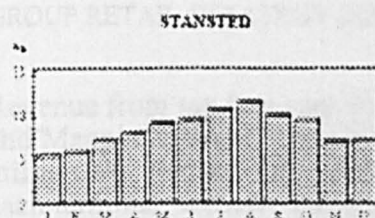
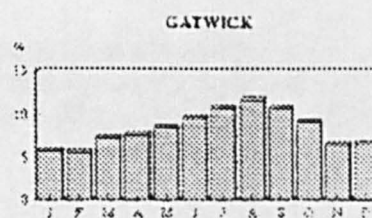
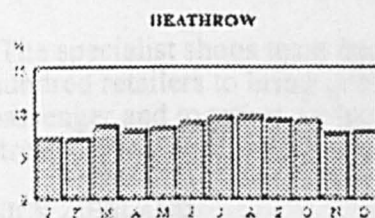
Up to 12 hours, £2.00;  
12 to 24 hours, £3.00;  
Each subsequent 24 hour period, £3.00;  
Long-term rates are available.



# Facts & Figures

**BAA**

## MONTHLY DISTRIBUTION OF PASSENGERS (% of 1996 Total)


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## Specialist Shops

### The International high street

'The specialist shops team has worked closely with over one hundred retailers to bring quality and choice to the travelling passenger and together we have created a truly international high street.'

NICK ZIEBLAND

GROUP RETAIL STRATEGY DIRECTOR

A handwritten signature in black ink, appearing to be 'Nick Ziebland', written over a light blue horizontal line.

Revenue from tax free specialist shops such as Dixons, HMV and Mappin & Webb, increased by 60% during 1995/96 to £33 million. As demand for a wider range of products continues in each terminal, we have attracted more and more leading brands to our tax free departure lounges.

In 1996 Heathrow welcomed new fashion brands into Terminal 2 such as Timberland, The Gap and gentlemen's outfitters Hacketts and the first Marlboro Classics store situated in Terminal 1.

Selfridges also made its airport debut in Terminal 1 which was soon followed by the opening of a second store in Terminal 2.

Quality international brand names such as Hermes, Gucci and Ferragamo are available to the travelling customer within a few seconds walk of the best of the British high street with stores such as Dixons, Liberty, Tie Rack and Boots the Chemist.

### BOOKSHOPS

Passengers travelling internationally not only benefit from the wide range of books on offer by Books etc, W H Smith, Waterstone's and Menzies but can also buy the latest paperback editions of bestsellers before they appear in the UK high street.

Recently the Books Plus stores operated by Alpha Retail Trading underwent a major re-merchandising initiative to target their range more actively to the travelling passenger.

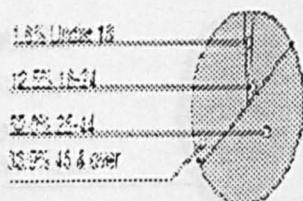
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### EXTENDING THE RANGE

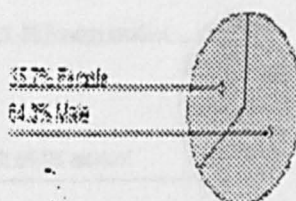
The range of products sold at the airports never stops growing and for many retailers their airport outlets outperform their high street stores measured by sales per square foot. Mappin & Webb in Heathrow Terminal 4, for example, sells more Rolex watches than any other UK store, and Dixons at Gatwick South Terminal

## Passenger Analysis

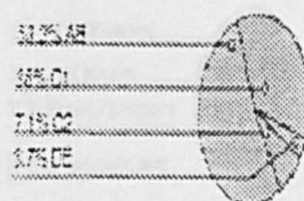
### Passenger profile at Heathrow 1995/96



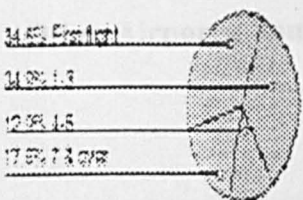
AGE



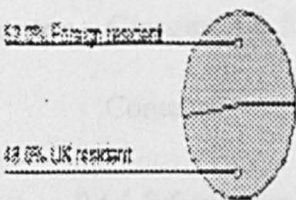
SEX



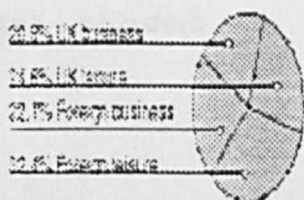
SOCIO-ECONOMIC GROUP



FREQUENCY OF FLIGHTS

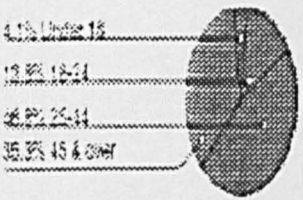


UK/FOREIGN RESIDENT

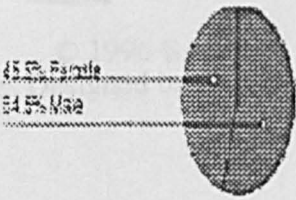


PASSENGER TYPE

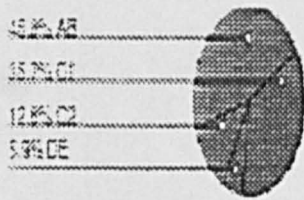
### Passenger profile at Gatwick 1995/96



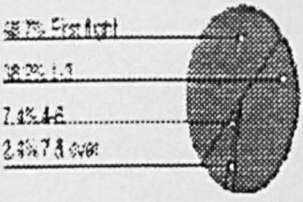
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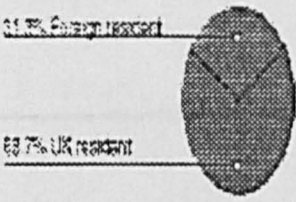
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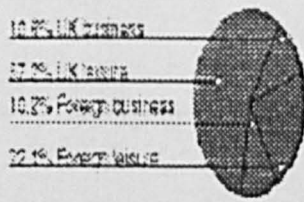
SOCIO-ECONOMIC GROUP



FREQUENCY OF FLIGHTS



UK/FOREIGN RESIDENT



PASSENGER TYPE

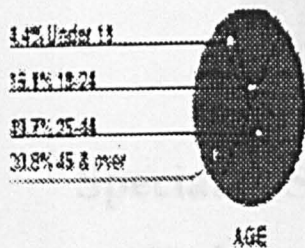
### Passenger profile at Stansted 1995/96

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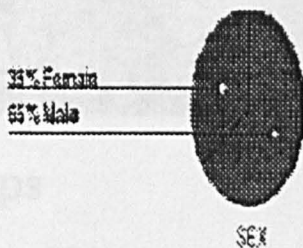
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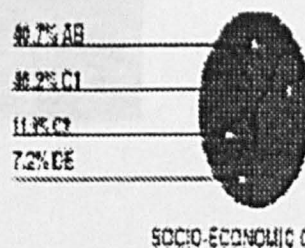




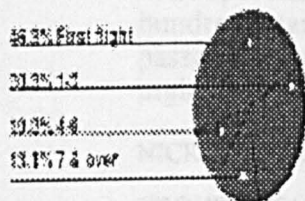
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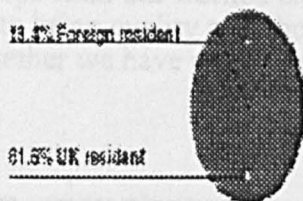
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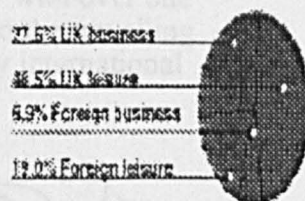
SOCIO-ECONOMIC GROUP



FREQUENCY OF FLIGHTS



UK/FOREIGN RESIDENT



PASSENGER TYPE

## Other Airports: Southampton - Glasgow - Edinburgh - Aberdeen

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### EXTENDING THE RANGE

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sells 18 times more personal stereos than any of their high street stores.

Shoes have always sold well at the airport and Bally now have tax free stores in each one of Heathrow and Gatwick's six terminals. Bally have also opened specialist accessory stores at the airports, where demand for their high quality leather goods is three times greater than in the high street.

At BAA's airports there are now over 260 shops and bookstores representing over 100 individual concessionaires.

10.7% Personal stereos

10.7% Shoes

13.6% Food

HEATHROW

Tax free sales analysis 1996/97

16.5% Clothing

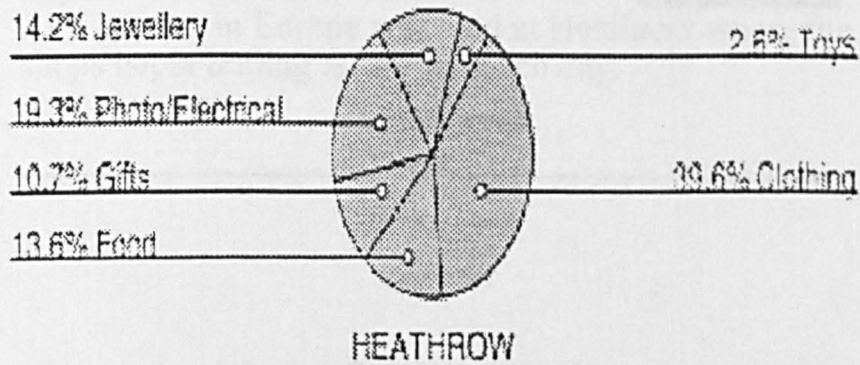
1.7% Jewellery

37.2% Food



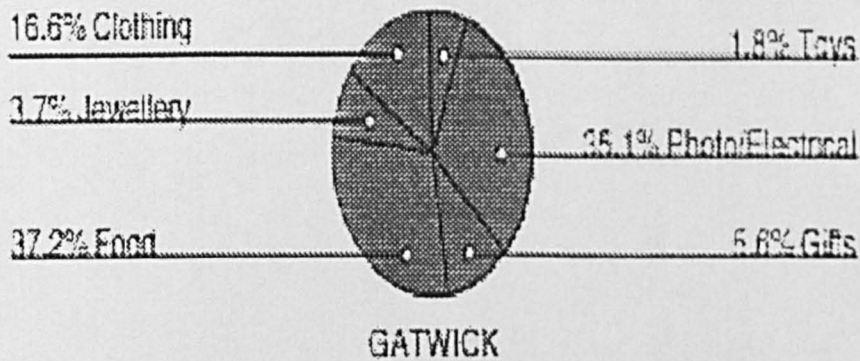
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### Tax free sales analysis 1995/96 Heathrow



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### Tax free sales analysis 1995/96 Gatwick



Dixons opened its first airport store in 1994 at Heathrow's Terminal 3 and from day one it has been a huge hit with passengers. AA group product manager Ian Denchfield discusses the launch of the new Advanced Photo System at Heathrow with Tony Haines, airport manager for Dixons. The first APS camera in Europe was sold at Heathrow where the shops begin trading at 6.00am each day.



## Contents

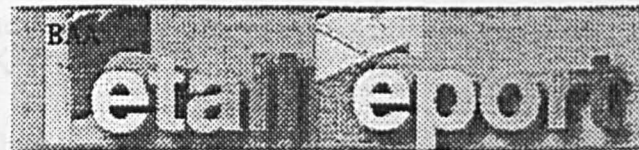
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## Retail Facts and figures

### The Facts

- Whisky is the most popular drink for passengers with F&A in the UK, followed by beer
- A quarter of all flights sold by BAA are sold at their airport stores
- More than 60 tonnes of goods are sold at Heathrow each year
- The top-selling newspaper at BAA airports is the Daily Mail
- In 1993, at Heathrow, the most popular drink sold was a magnum of Chateau d'Audon, followed by a bottle of Ruud and a Japanese tea. The most popular food sold through Terminal 1 is a 100g packet of 10-year-old The Macallan single malt Scotch whisky, one of just twelve bottles sold each year.
- Heile is the top-selling wine at BAA airports and C&A is the top-selling food at airports.
- Last year over 70,000 bottles of French wine were sold in Terminal 2 together with 40,000 bottles of beer. Flights end to end the vignette of the wine trade over 4,500 miles from London to Hong Kong.
- One million gallons of water and 10,000 are sold each year at Heathrow.
- Twenty-six thousand bottles of wine and 10,000 bottles of beer and 1,000 bottles of water are sold every day at Heathrow.

10/13/97 13:59:34

10/13/97 13:59:34

10/13/97 13:59:34

10/13/97 13:59:34

10/13/97 13:59:34



- The most popular fragrance at BAA's airports is CK-one
- A bottle of whisky is sold every six seconds at a BAA airport
- Mappin & Webb in Heathrow Terminal 4 sells more Rolex watches than anywhere else in the UK
- Whisky is the most popular tippie for airport passengers with Famous Grouse the top selling brand
- A quarter of all films sold by Dixons are sold at their airport stores
- More than 60 tonnes of crisps are sold at Gatwick each year
- The top-selling newspaper at BAA airports is the Daily Mail
- In 1995, at Heathrow, one man bought an £8,500 magnum of Chateau Margaux from Berry Bros. & Rudd and a Japanese traveller returning home through Terminal 1 bought a £10,000 bottle of 60-year-old The Macallan single highland malt whisky - one of just twelve bottles which exist
- Hello is the top-selling women's magazine and GQ is the top-selling men's magazine at the airports
- Last year over 700,000 bottles of liquor were sold in Terminal 2 together with 83 million cigarettes. Placed end to end the cigarettes would cover over 4,500 miles from London to Barbados
- One million gallons of wines and spirits are sold each year at Heathrow
- Twenty-six thousand cups of tea and coffee, 6,500 pints of beer and 6,500 sandwiches are sold every day at Heathrow



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Heathrow | Indianapolis | Southampton | Stansted

# Car Parking

## BAA HEATHROW

SHORT STAY | BUSINESS | LONG STAY

**Car Park Information**  
**0800 844 844**

**BA Express Parking**  
**0181 562 9177**

Chauffeured Parking Services & BA Express Parking provide the ultimate valet parking. Prices on a sliding scale from £27.00 for the first 24 hours. Prices correct as at September 1995.

### Short Stay Car Parking

**NCP (Terminals 2 & 3),**  
Multi-storey Car Park,  
Terminal 2,  
Heathrow Airport, Hounslow  
Middlesex TW6 1HT.  
Freephone BAA Shopping  
Information  
0800 844 844

**CPS (Terminals 1 & 4)**  
Central Parking System of UK  
limited.  
Scylla Road, off Southern  
Perimeter Road,  
Heathrow Airport, Hounslow,  
Middlesex TW6 3XL.  
Freephone BAA Shopping  
Information  
0800 844 844

### Long Stay Car Parking

**Flightpath,**  
NCP, Flightpath Long Stay Car  
Park,  
Eastern Perimeter Road,  
Heathrow Airport, Hounslow,  
Middlesex TW6 1JH.  
Freephone BAA Shopping  
Information  
0800 844 844

### Business Parking

**APCOA,**  
APCOA (UK) LTD,  
Business Park A,  
Northern Perimeter Road,  
Heathrow Airport, Hounslow,  
Middlesex TW6 2QJ.  
Freephone BAA Shopping  
Information  
0800 844 844

**Pink Elephant Parking,**  
Business Park D,  
Northern Perimeter Road,  
Heathrow Airport, Hounslow,  
Middlesex TW6 1JH.  
Freephone BAA Shopping  
Information  
0800 844 844

### Park and Fly

### Valet



**Central Parking System of UK Limited,**  
Scylla Road, off Southern  
Perimeter Road,  
Heathrow Airport, Hounslow,  
Middlesex TW6 3XL.  
Freephone BAA Shopping  
Information  
0800 844 844

**Chauffered Parking Services,**  
Croudace House,  
Godstone Road,  
Caterham,  
Surrey,  
CR3 6XQ.  
Freephone BAA Shopping  
Information  
0800 844 844  
Freephone 0500 340 089

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Customer service is a top priority at Heathrow and car parking must be geared to your needs. Extensive research into customer requirements has led to a programme of improvements to make parking your car at the airport more convenient than ever. Now there's a greater choice of parking at Heathrow - Short Stay, Long Stay and Business Parking.

All are run by parking specialists and you will often find, within the Business and Long Stay car parks, special deals and discounts on the maximum charges set by Heathrow Airport Limited. This spirit of competition will ensure you get the best possible service and value for money.

So that we continue to achieve the highest possible standards, car parking is backed by the BAA Value Guarantee. The guarantee is detailed below.

**We guarantee you will find the following:**

- Clear signs to all car parks.
- A guaranteed space - if the car park of your choice is full we will redirect you to one of our other car parks, upgrading where possible, at no extra charge.
- Prices clearly displayed at car park entrances.
- Surveillance by regular patrols. All airport car parks are linked by a Car Park Watch scheme, in association with the Metropolitan Police, to maintain high levels of security. All operators, on request, will provide assistance to lone drivers within the car park.
- Facilities for drivers with disabilities.
- Helpful, friendly staff.
- A free jump start service and help if you break down.

**..... And That's Guaranteed.**

The Business car parks combine first class parking with rapid transfer to the terminals. They are ideal for the travellers, such as business flyers who are staying away for a few days and need the utmost in speed and convenience. Of the three Business car parks, two - Pink Elephant Parking and APCOA Business Parking - serve Terminals 1, 2 and 3. Park and Fly operated by Central Parking System, serves Terminal 4. The Business car parks are closer to the terminals than the Long Stay car park. To ensure not a moment is wasted, executive style coaches provide a fast transfer service that runs every 5 minutes between 05.30 - 23.30, and on request outside these times. We guarantee that your journey will take no longer than 15 minutes from car park to terminal.

If it takes longer, tell the car park company your journey date and time and you will be given the choice of one day's free Business parking, or

a £10 voucher which can be spent shopping at Heathrow.

If you have reason to be dissatisfied with the car parking service provided, in the first instance, approach the company operating the car park. If you are not completely satisfied or have any further comments, please write to Retail Operations Manager, Heathrow Airport Ltd., 234 Bath Road, Harlington, Middlesex UB3 5AP.

For details of all car parking facilities at and around Heathrow telephone Freephone BAA Shopping Information 0800 844 844, 24 hours a day.

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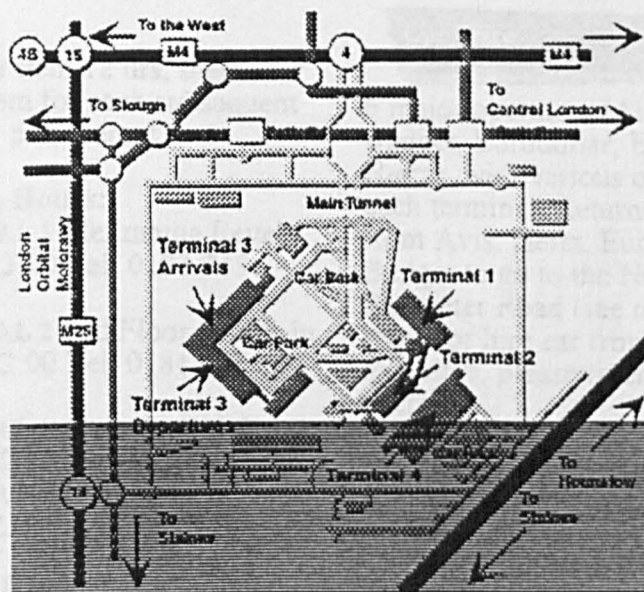
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# BAA HEATHROW



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# Airport Facilities

## BAA HEATHROW

£2.50 per item 12 hrs, thereafter  
£3 per item for each subsequent  
24 hrs or part thereof.

### Opening Hours:

**TERMINAL 1** Mezzanine Level  
06:00 - 23:00 Tel: 0181 745  
5301

**TERMINAL 2** Grd Floor Check-in  
06:00 - 22:00 Tel: 0181 745  
6100

**TERMINAL 3** Arrivals-Grd Floor  
05:30 - 22:30 Tel: 0181 745 4599

**TERMINAL 4** Arrivals-Grd Floor  
0530 - 2230 Tel: 0181 745 7460

Baggage Handling is the  
responsibility of airlines from  
point of check-in to collection.

If a piece of baggage is  
inadvertently left behind, the  
Airport Lost Property Office may  
be contacted on :

Tel: 0181 745 7727, 7 days a  
week from 0900 - 1600.

### First Aid

Medical Centre is located in the  
Queens Building, for details ask  
at the Information Desks. All  
terminals have trained first  
aiders.

For emergencies call: 999  
Chapel of St George. (see map  
for location). Tel : 0181 745  
4261 for information on service  
times.

Free facilities for parents of both  
sexes with babies are provided in  
each terminal. The baby care  
rooms are equipped to provide  
for feeding and changing of

### Car Hire

6 major operators (Alamo, Avis,  
Budget, Eurodollar, Europcar and  
Hertz), with various operators in  
each terminal. Returned hire cars  
from Avis, Hertz, Europcar and  
Budget to go to the Northern  
Perimeter Road (see map). For  
return of hire car from other  
operators, please refer direct to the  
operator.

### Business Facilities

Heathrow Business Centre,  
Tel: 0181 759 2434

Services include:

Conference/Board rooms,  
individual work stations and  
lounge, all with catering, showers,  
telephones, fax, computer  
facilities, photocopying and  
mobile phone hire. Easy access for  
the disabled. Situated in the  
Queen's Building, access from  
walkway between Terminals 1 and  
2.

### Bureaux de Change

Bureaux de Change and bank  
services at Heathrow guarantee  
availability of 50 currencies.  
Charges match or beat the  
principle four UK clearing banks.  
BAA guarantees that passengers at  
Heathrow will be able to buy up to  
£500 in ten major currencies in  
each terminal at any time. If the  
currency is not available  
passengers will receive the balance  
or their money and a bonus  
payment of £500 in Sterling  
travellers cheques.

babies in privacy and comfort.  
They are usually open from 0700  
- 2000 hrs daily.

#### Postal Services

It is now possible to post thin letters from the departure lounges after Passport Control in all Terminals.

#### BEFORE SECURITY

**TERMINAL 1** - Post boxes & coin operated stamp machines only.

**TERMINAL 2** - Post Office 0830 - 1730 Mon-Sat, 0830-1300 Sun/Bank Holidays.

**TERMINAL 3** - Post boxes & coin operated stamp machines only.

**TERMINAL 4** - Post Office in Bureau de Change in Departures 0900 - 1730 Mon-Sat, 0900-1300 Sun/Bank Holidays.

#### Special Needs

Help Points are located in car parks, terminal forecourts and baggage reclaim halls. Passengers with special needs can request free assistance for travel between terminals by calling on the grey telephone from any of these Help Points. The Skycap valet service is FREE to passengers with disabilities, elderly people and those travelling with young children. Telephones have induction loops for the hard of hearing. Further assistance and advice can be provided by Travel Care, Tel: 0181 745 7495, an independent social work agency offering information, advice and counselling to travellers, located in Queen's Building. Open 0930-1630 Mon- Sat or contactable through the Information Desks.

BAA Shopping Information 0800 844844

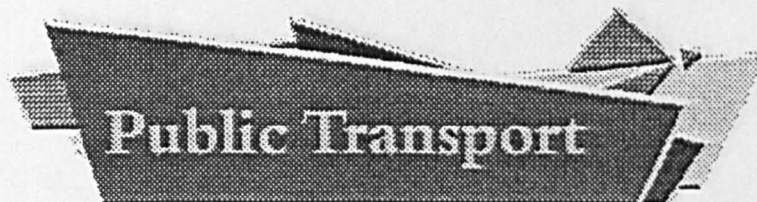
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## BAA HEATHROW

### Buses and Coaches

The Central Bus Station is reached via subways linking Terminal 1, Terminal 2 & Terminal 3. For information on services, times and prices refer to the Travel centre or directory board.

The Coach Station adjacent to Arrivals, Terminal 3 operates services to Gatwick, Stansted, Reading/Woking and the Airbus Service to London, W1. A courtesy bus service provides links between all terminals.

### Underground

#### (Piccadilly Line)

Trains run every 5-9 mins.

Average journey times 47-60 mins.

#### TERMINAL 4

First train departs 05:08 (Sunday 05:58), last train departs 23:49 (Sunday 22:57).

#### TERMINALS 1, 2 AND 3

Trains run 5 minutes later than above times.

For further information contact  
0990 747777

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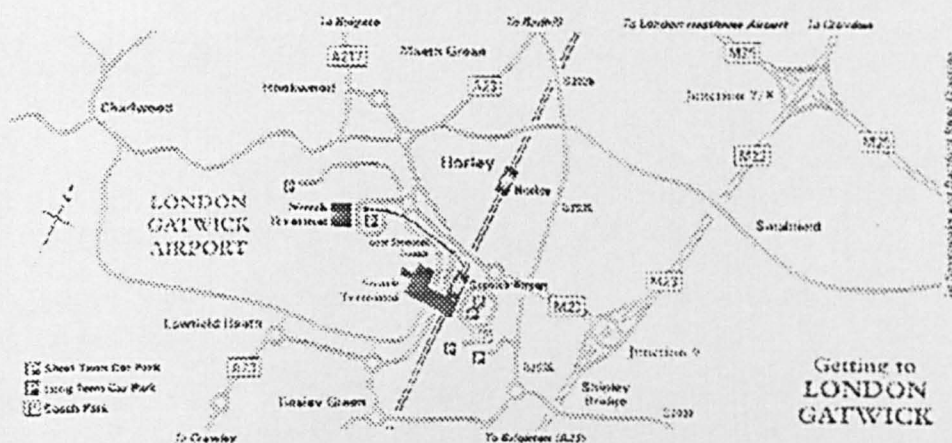
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# How to get there

## BAA GATWICK



London Gatwick is 45kms (28 miles) south of London, directly linked to the M23 motorway at junction 9 and to the A23 London-Brighton road.

There is works being done on the M25, between junctions 8 & 10. Please allow extra time for your journey.

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BAA GATWICK

## ACCESS

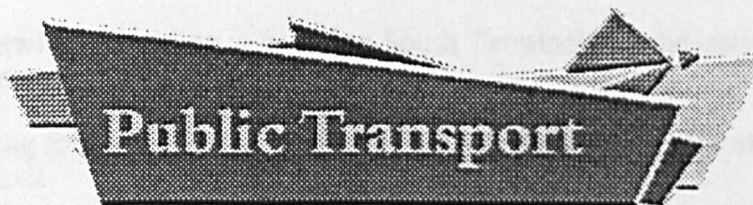
All coach services stop at London Gatwick's coach station on the ground floor of South Terminal. Principal services also call at North Terminal. Passengers arriving at South Terminal, but requiring North Terminal should take the escalator.

Speedlink Airport Services Ltd operates the coach and bus information desks in both terminals and in the Coach Station.

Bus & Coach travel line - 0990 747777 (0800 - 24/24 hrs)

## MAIN SERVICES

From most parts of Britain connect at Victoria Coach Station and the Airport to London Gatwick.



## BAA GATWICK

### Buses and Coaches

#### ACCESS

All coach services stop at London Gatwick's coach station on the ground floor of South Terminal. Principal services also call at North Terminal. Passengers arriving at South Terminal, but requiring North Terminal, should take the transit.

Speedlink Airport Services Ltd operates the coach and bus information desks in both terminals and in the Coach Station.

Bus + Coach travel line - 0990 747777 (0800 - 2000 hrs)

#### MAIN SERVICES

Principal direct express coaches to London Gatwick are listed below. In addition, services from most parts of Britain connect at Victoria coach station with the Flightline 777 to London Gatwick.



The London Gatwick rail station is linked to South Terminal and the station exit leads onto the check-in concourse.

If you are heading for North Terminal, please follow the signs from the station platforms and take the transit.

The station manager can arrange for staff to assist you on arrival. For further advice, please telephone:

**Disabled persons rail travel**  
01293 524167

## **GATWICK EXPRESS**

London Victoria Station. Every 15 minutes during the day, 30 minutes early morning and late evening, half hourly at night.

Journey time: 30 minutes non-stop.

**Recorded timetable**  
0990 30 15 30

## **NETWORK SOUTHCENTRAL**

London Victoria station. Typically four trains an hour during the day, hourly service at night. Typical journey time: 33 minutes during the day, 40 minutes at night.

## **THAMESLINK**

Trains to five London stations: Kings Cross Thameslink, Farringdon, City Thameslink, London Blackfriars and London Bridge. Four trains an hour during the day, hourly services late evening. Journey time to London Bridge: 30 minutes.

## **LONDON CHECK-IN**

Passengers flying with the following airlines may check in baggage at the airline offices at Victoria Station:- American Airlines. British Airways combining Air Zimbabwe, BA Express, GB Airways, Maersk Air, Royal Nepal Airlines and TAT.

## **NATIONAL AND REGIONAL SERVICES**

Details of Network SouthCentral, South Eastern and Thameslink services between London Gatwick and Sussex, Surrey, South London and throughout the South East, are available from your local rail station, or by telephoning:

**London**  
0171 928 5100

**Brighton**  
01273 206755\*

**Tonbridge**  
01732 770111

or other rail enquiry bureaux (please see your telephone directory for local numbers). \* Also offers telephone ticket sales. All major credit and debit cards are accepted. Please allow seven days for delivery. Minimum purchase £10.  
For details of Thames Trains Services to Reading and the the South West, please telephone:

**Reading**  
01734 595911

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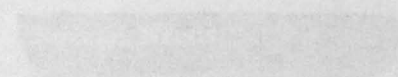
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If you are going to the airport, please go to the airport information desk.

There is a pass box and a shop machine at the departures concourse, near the domestic arrivals area, and a ticket and box office near the Thomas Cook Bureau de Change located between the departures and international arrivals concourses. Stamps are also available from the information desk.

Located between the departures and international arrivals concourses at both ends of the check in desks and at the international arrivals lounge and the international baggage reclaim hall, the Bureau de Change can offer a wide range of financial services. In addition to providing currency exchange, the bureau also cash sterling cheques, Euro cheques, and is accompanied by a cheque guarantee fund.

Telephone (01734) 681113 - Thomas Cook  
Telephone (01734) 680231 - I.C.E.



There are comprehensive facilities for disabled passengers.

Self-service car rental

Four car rental companies have desks at the international arrivals concourse and offer a range of vehicles and conditions to suit your needs. These are all self-service as follows:

Aviz Telephone (01734) 681113

Budget Telephone (01734) 681114

Europcar Telephone (01734) 681115

Hertz Telephone (01734) 681116

For more information on which of the above companies is the best for your type of vehicle or requirements, please call a representative.

Fax and photocopying facilities

Located near the airport information desk, at the international departures concourse and at the domestic lounge is satellite 1, the airport fax and photocopying facilities.

Banking facilities

There are Standard Bank, Barclays Bank and Abbey National cash dispensers located near the Bureau de Change adjacent to the departures concourse.

The Bureau National Hotel

## BAA STANSTED

### Left Luggage

If you lose items at the airport, please go to the airport information desk.

There is a post box and stamp machine on the departures concourse, near the domestic arrivals exit, and a second post box opposite the Thomas Cook Bureau de Change located between the departures and international arrivals concourses. Stamps are also available from the newsagents nearby.

Located between the departures and international arrivals concourses at both ends of the check in desks and in the international departures lounge and the international baggage reclaim hall, the Bureaux de Change can offer a wide range of financial services. In addition to providing currency exchange, the bureaux also cash sterling cheques, free of charge, accompanied by a cheque guarantee card.

**Telephone (01279) 681113 - Thomas Cook.**  
**Telephone (01279) 680921 - I.C.E.**

### Special Needs

There are comprehensive facilities for disabled passengers

### Car Hire

#### Self-drive car rental

Four car rental companies have desks on the international arrivals concourse and offer a range of vehicles and choice of tariffs. You may contact these rental companies as follows:

Avis Telephone (01279) 663030

Budget Telephone (01279) 681194

Europcar Telephone (01279) 680240

Hertz Telephone (01279) 680154

Bookings will be taken on arrival or in advance. However, if a particular make or type of vehicle is required, pre-booking is recommended.

#### Fax and photocopying facilities

Situated next to the airport information desk, in the international departures lounge and in the domestic lounge in satellite 2, are credit card operated fax and photocopying machines.

#### Banking facilities

There are Midland Bank, Barclays Bank and Abbey National cash dispensers beside the Bureau de Change adjacent to the departures concourse.

#### The Hilton National Hotel



including special parking areas, low check-in desks and toilets.

### **Deaf and hard of hearing**

If you have a hearing aid with a "T" position you can receive enhanced announcements relayed over the public address system when standing close to the induction loops indicated by the ear symbol. See the 'Terminal Plan'. Flight departure announcements are not made in the terminal. For flight information you should consult the monitors located throughout the building. Passengers who find themselves in difficulty are able to obtain help from the airport information desk staff and security staff, most of whom are proficient in sign language. All the public payphones have the facility to turn up the volume.

### **Blind and partially sighted**

Blind and partially passengers who cannot read the flight display monitors should advise the airline or handling agent when checking in, or seek assistance at the airport information desk. Final call flight departure announcements are made in the satellites only, where the gates are located.

### **First Aid**

If you feel unwell, please go to the airport information desk, tell a member of staff or use the information telephones to summon assistance.

## **The Hilton National Hotel**

This is the only hotel within the airport. It is located next to the long stay car park. With full business and leisure facilities, the hotel makes an ideal conference or meeting venue and is ideally situated for late flight arrivals and early departures. For its location see 'Airport Road Plan'.

### **Features :**

- 237 twin and double rooms and Conference facilities for up to 300 delegates
- Six additional meeting rooms in Business unit and Restaurant and Bar
- Health and leisure club with two pools, spa bath, gym, sauna and solarium
- Frequent courtesy bus link with the terminal
- Parking for 250 cars

For further information contact the Hilton National Hotel, Round Coppice Road, Stansted Airport, CM24 8SE. Telephone (01279) 680800.

### **Baby Care Rooms**

Displaying the National Childbirth Trust symbol, special individual unisex rooms equipped with nappy dispensers, changing tables etc. are provided for feeding and changing babies. They are located throughout the terminal and in satellite 1. At least one of the catering outlets will provide hot water to heat baby food.

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# Car Parking

## BAA STANSTED

### Long Stay Car Parking

If you have a special need the car park operator will provide assistance in getting you to the terminal. There are frequent courtesy buses to and from the terminal. All are fitted with wheelchair lifts and tracking. For more details about arriving at London Stansted, See the "How to get there" section.

### Short Stay Car Parking

Reserved parking bays for orange badge holders are located in the short stay car park, close to the terminal entrances. Access into the terminal is by lift or ramp. For assistance use the information telephones provided next to the parking bays.

Payment is made when you return from your trip. Automatic payment machines are located in the international baggage reclaim hall, international arrivals concourse, in the check-in area and at the car park exits. Cash and credit cards are accepted. Remember to take your car park ticket with you on your flight! If you are paying by cheque or voucher, or if you have any difficulties, for example if you have lost your ticket, please go to the cashier at the car park payment desk on the international arrivals concourse. You may also pay the cashier with foreign currency.

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SERVICE	FROM	TELEPHONE
Speedlink	Heathrow	0990 747777
Jetlink 747	Norwich, Stansted, Stevenage, Luton, Watford, Heathrow, Brighton	0990 747777
Flightline 777	London Victoria, Stanstead	0990 747777
Flightlink	Birmingham, Coventry, Banbury, Heathrow, Wolverhampton	01293 502359/2177 or 0121 322 2222
Oxford City Link X80	Oxford, Heathrow	01865 711312 or 01865 722270
National Express 325	Wolverhampton, Birmingham, Manchester, Blackburn, Burnley, Colne	01293 507178
National Express 230	Newcastle, Sunderland, Middlesborough, Nottingham, Leicester	0171 730 0202
National Express 240	Bradford, Leeds, Sheffield	01403 241757
Flightlink 200	Bristol	
Flightlink 201	Swansea, Cardiff, Newport	
Cambridge 78/79	Cambridge, Stansted	01223 236333
London & Country 727	Reigate, Epsom, Kingston, Crawley	01293 524287
Local C line buses	Crawley	01293 524287
London + County 733	Crawley, Hondcross, Hassocks, Brighton	01293 414093
	Gatwick Airport X38	Horley, East Grinstead 01293 414093

**Trains**

## **APPENDIX B**

## Assessment Centre Simulation

Please imagine that you are an assessor in an assessment centre which has been designed to select candidates for a graduate management training scheme, within a large organisation. The following exercise has been designed to evaluate the degree to which candidates exhibit four competencies, which have been identified as essential to the designated job role.

These competencies are:

- I. **Communication:** the ability to communicate effectively with others.
- II. **Influencing:** the ability to influence others.
- III. **Information use:** the ability to use information in order to answer a question, or solve a problem.
- IV. **Problem solving:** the ability to generate solutions to a problem and to select the most appropriate of these solutions.

Please watch the following assessment centre exercise closely, in order to identify the degree to which each candidate demonstrates the above four competencies. At the conclusion of the exercise please give each candidate a rating (out of 7) for each competency.

	<b>Communication (0-7)</b>	<b>Influencing (0-7)</b>	<b>Information Use (0-7)</b>	<b>Problem Solving (0-7)</b>
Candidate 1				
Candidate 2				
Candidate 3				

Many thanks for your participation.

## **APPENDIX C**

## Assessment Centre Simulation

Please now imagine that you are a team of assessors in an assessment centre that has been designed to select candidates for a graduate management training scheme, within a large organisation.

The purpose of the group discussion is to resolve any differences in your ratings and to assign each candidate with a rating for each competency, and for overall suitability, as a group.

These competencies are:

- I. **Communication:** the ability to communicate effectively with others.
- II. **Influencing:** the ability to influence others.
- III. **Information use:** the ability to use information in order to answer a question, or solve a problem.
- IV. **Problem solving:** the ability to generate solutions to a problem and to select the most appropriate of these solutions.

Please discuss your individual ratings until you can agree on a series of ratings for each candidate.

	<b>Communication (0-7)</b>	<b>Influencing (0-7)</b>	<b>Information Use (0-7)</b>	<b>Problem Solving (0-7)</b>
Candidate 1				
Candidate 2				
Candidate 3				

Many thanks for your participation.

## **APPENDIX D**

**Name:**

**Please rate each member of your group (including yourself) according to how much influence you feel that they had over the group discussion. Please give each member a rating on a seven-point scale (see below). If you feel that they have had a lot of influence, give them 7. If you feel that they had some influence you might give them 4, or if you feel that they have had no influence give them 1**

**A lot of influence 7      6      5      4      3      2      1      0 No influence**

**Please also rank the members of your group (including yourself) according to the relative amounts of influence that you feel they had over the group discussion. So each member of the group should be given a ranking between 1 and 3, with 1 representing the person that you feel had the most influence over the group, and 3 the person that you feel had the least influence.**

<b>Name</b>	<b>Rating</b>	<b>Ranking</b>

## **APPENDIX E**



## **STANDARDISED INTRODUCTIONS FOR TEST ADMINISTRATION**

### **Personality Research Form:**

When you start work on this questionnaire, you'll find that the booklet contains a series of statements that you might or might not use to describe yourself. To complete the questionnaire, simply read each statement in turn and decide whether you feel it does or does not describe you. If it does please mark the corresponding box labelled T for true on the answer sheet. If on the other hand you read a statement and feel that it does not describe you, please mark the F for false box.

This process should be repeated for the first statement, the second statement, the third statement and so on until you reach the end. When marking your choices, please use an X as shown in the example printed towards the top right hand corner of the answer sheet. Please make no marks at all on the question booklet that we will be re-using. If you accidentally mark the wrong box please erase it and put a cross in the box that you really meant to choose.

It is important that you mark either the T box or F box on the answer sheet for every statement in the questionnaire booklet. Please be sure that you do this even if, in some cases, you are not completely sure of your choice. Please be careful that you mark the correct box on the answer sheet that corresponds with the statement from the question booklet you are currently considering.

Any questions so far?

*(Pause for questions)*

There is a not time limit for completing the questionnaire but we ask that you work rapidly but carefully through the items. If you record your first reactions to each statement we'll get the best quality information. Please let me know

when you reach the last statement and we'll organise a short break for you before moving on to the group exercise.

You may start working through the questionnaire now.

### **Personal Attributes Questionnaire:**

You'll see from the example shown near the top of the front page that the items in this questionnaire are made up of pairs of statements such as 'Not at all artistic' and 'Very artistic'. Obviously you can't be both at the same time.

What we ask you to do is to decide where you stand on a scale labelled A through to E that runs between the pair of statements. You should choose just one of the letters that describes best where you feel you fall on the scale and mark your choice by circling that letter on the booklet.

In the case of the example, if you think you have no artistic ability you would circle the letter A. If you think you are a little above average in terms of artistic ability you would circle D.

Once you have made your choice on the first item, move onto the second, then the third etc. until you have completed all the items.

Overall you must mark one and only one letter for each item, and you must make a choice for every item. Are there any questions so far?

*(Pause for questions)*

Once again there is no time limit but we'll get the most accurate information if you report your first reaction to each item and don't think about the items too much as you work through the questionnaire. If you'd now like to check through the directions on the first page and start working through the items.

## **Bem Sex Role Inventory:**

When you start work on this questionnaire you'll see that the items in this case are made up of a list of personality characteristics. Examples are sly or carefree.

We would like you to use those characteristics to describe yourself by rating on a scale of 1 to 7 how true each of these characteristics is about you. You'll see how to use the rating scale on the cover page. For example, choosing a code of 1 would indicate that a particular characteristic was never or almost never true of you. As a complete opposite, you should choose a code of 7 if you feel that the characteristic is always or almost always true about you.

Please turn to the next page of the booklet. To complete the questionnaire, write the number you have chosen to describe yourself in terms of each personality characteristic in the boxes provided. To remind you of the numbers and codes, you'll see them set out at the top of the page. Again I must ask you to complete every item in the booklet and again we recommend that you base your choices on your first reactions as you read each item.

## **California Personality Inventory:**

Before you start working on this questionnaire I'd ask you to read through the directions on the front cover of the question booklet. There are a few points I would like to stress before you do that.

You'll find that this question booklet contains a list of statements and we'd like you to read each one in turn and decide how you feel about it. If you agree with the statement or feel that it is true about you mark the bubble labelled T for true. Alternatively, if you disagree or feel that the statement is not true about you mark the F for false bubble.

There are just a couple of further points: Firstly, as you mark your choices on the answer sheet, please make sure that you fill in the bubbles carefully and completely as this will make scoring very much easier for us. Secondly, please try and answer T or F for every statement. However, if there are a few questions that you cannot, or prefer not to answer, you may omit them. Thirdly, it is fairly easy on this questionnaire to get out of sync between the bubbles on the answer sheet and the statement you are considering from the questionnaire booklet. Obviously, please try and avoid this happening. For guidance, you should reach a break in the answer sheet bubble layout each time you reach the bottom of a page in the questionnaire booklet.

Any questions?

*(Pause for questions)*

Once again, you will give us the best information if you rely on your first reactions to each item. Now read through the directions and then start working through the statements in the booklet.

## **APPENDIX F**

## **MANAGEMENT ASSESSMENT CENTRE COMPETENCIES**

**Customer focus:** knowing who your customers are and keeping the meeting of their needs at the forefront of your mind and taking responsibility for the service delivered to them.

**Leadership:** identifying the key issues and motivating and empowering others to address them in a way which builds morale, generates ownership and commitment and harnesses energies and talents towards achieving common goals.

**Preference for action:** grasping issues that require resolution and ensuring that appropriate effective action is taken.

**Strategic thinking:** the ability to look broadly and see the whole picture and to see linkages and interdependences that may not be too obvious.

**Decision-making and judgment:** ability to exercise judgment and make decisions.

**Contribution to results:** the drive and determination to succeed and make a positive contribution at work.

**Teamwork:** the desire and ability to work with others in a cooperative and collaborative way.

**People development:** promoting personal development as the key to meeting future business needs and taking the responsibility for the development of self and others.

**Professionalism and business integrity:** the ability and willingness to align behaviour with the objectives, mission and values of Standard Life and act in ways that present the most positive image of the company.

**Openness to ideas:** seeking examples of 'world best practice' and applying the lessons learned in ones own area.

## **APPENDIX G**



## **ACTUARIAL ASSESSMENT CENTRE COMPETENCIES**

**Analytical thinking:** being able to assimilate and analyse data to get to the heart of an issue or problem.

**Creative and innovative thinking:** being able to see problems from new or different angles and to generate (or recognise) imaginative ideas and solutions to exploit the inherent opportunities in a situation.

**Decision-making and judgment:** being able to make a logical assessment of alternative courses of action and reach valid, sound conclusions.

**Communication:** being able to make oneself understood both verbally and in writing and to obtain data and information from others.

**Influence:** being able to influence others to accept and support his/her arguments and proposals when they want to.

**Planning and organising:** being able to set a course of action and implement it. At early career stages this is essentially about personal planning and organisation.

**Interpersonal sensitivity:** being able to modify behaviour to build and maintain effective working relationships.

**Teamwork:** the desire and ability to work with others in a cooperative and collaborative way.

**Achievement drive:** possessing the drive and determination to study and qualify and to make a positive contribution to work.

**Customer Focus:** desire and ability to work with internal and external customers to identify and meet their needs.

**Personal Values:** has a clear sense of values, knows what is right and wrong and honest, open and upfront with others and has a clear sense of responsibility.

## **APPENDIX H**

## Acty Competences Matrix

Exercise /Criteria	Gallup Interview	Ability Test	CBI	Tricky Issues Group Exercises	Lear Sports
Achievement Drive	✓		✓		
Customer Focus	✓		✓		
Teamwork			✓	✓	
Interpersonal Sensitivity				✓	
Communication				✓	✓
Influence				✓	✓
Planning & Organising			✓		✓
Analytical Thinking		✓			✓
Creative & Innovative Thinking					✓
Decision Making & Judgement				✓	✓
Values & Integrity	✓		✓		

## **APPENDIX I**

**Dear Assessor**

**As a Ph.D. student at Cranfield University, I am looking at the way that different teams of people make decisions, with particular focus on the assessor meeting at an assessment centre. With the support of the Graduate Recruitment Team within the Standard Life Human Resources department, I have been looking at graduate assessment centres within Standard Life. The ultimate purpose of this research is to improve the effectiveness of assessment centre decision making in general. I will also be making some best practice recommendations to the Graduate Recruitment Team with regard to future assessment centres so that you can continue to be confident that you are recruiting the best individuals into the Company.**

**As an assessor, you, and the rest of the assessor team, have made the decision of whether or not to employ any particular candidate. You have probably worked in a number of assessor teams with a number of assessors. I am interested in the way that different assessors, within different teams, make decisions about candidates.**

**For the purpose of my research I need to measure on a scientific basis, how each assessor differs from the other assessors in their team. In order to do this I am asking you to complete two personality questionnaires, which are enclosed with this letter. The two questionnaires will ask you about a number of personality characteristics, some of which will be relevant to your role as an assessor. These are designed to build an overall picture of your personality and will allow me to see how you are different, or similar to the other assessors in your team. It is vital to my research that I have as many assessors' responses as possible so I would appreciate it if you could complete these and return them to me as soon as possible.**

**The two questionnaires are relatively self-explanatory and should take a maximum of fifteen minutes to complete. Please write your name on each questionnaire. I need your name so that I can match your responses to those of the rest of your team. Once this has been done, all of this information will be treated anonymously. These questionnaires are for research purposes only and will remain confidential, so please be as honest as possible. Remember that I am not interested in your responses to individual items. Please read the instructions on the front page carefully before you complete each questionnaire.**

**Once you have completed the questionnaire, please return them to me using the Freepost envelope provided. If you would like any feedback regarding your responses, or have any questions about my project or the questionnaires, please do not hesitate to contact me on (01234) 750111 Ext. 5199 or via email on [e.parry@cranfield.ac.uk](mailto:e.parry@cranfield.ac.uk).**

**Many thanks for your kind cooperation.**

**Emma Parry**

**Human Factors Group**